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FEES AND SERVICE CHARGES AS A SOURCE OF CITY REVENUES: A CASE STUDY OF LOS ANGELES

J. A. STOCKFISCH *

THIS paper will show how city governments can raise substantial additional revenues by imposing fees and service charges for many of functions they perform, and by conducting their enterprise or quasi-enterprise operations in accordance with rational pricing principles. For example, during fiscal year 1957, the City of Los Angeles spent $170 million and had receipts of $175 million. During that same year, had the City employed a more systematic and rational method of "pricing" many of its services, it could have raised $69 to $74 million, which would have been available either for tax relief or for financing additional activities, including capital improvements. The failure to charge appropriate fees and prices, where a justification for doing so exists, caused the City of Los Angeles to forego revenue sources which could have taken care of 43 per cent of its actual expenditures.

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The really significant implication of this observation is that in a future which otherwise portends grave fiscal difficulties for cities, including Los Angeles, there exists a fruitful source of additional revenues. Or perhaps the fiscal future of city governments need not be grave after all, provided city policy makers exhibit enough political adroitness to apply the principles upon which the following analysis and findings are based.

This study consists of five parts. Part I presents the principles upon which the empirical estimates are based. Parts II-IV take up respectively three broad categories of city-government functions where fees and charges may be introduced or revised. Part II treats areas which involve special use of police power. Part III examines activities where the government provides a service for identifiable private individuals and groups. Part IV considers purely enterprise functions that the City performs. Part V contains some concluding remarks and observations.

Part I—Theory and Concepts

The revenue estimates upon which the following analysis was based were de-

rived from raising the following question: What would the City gain in revenue if it attempted to eliminate, either partially or entirely, the " subsidies in kind " it provides particular individuals and groups? For purposes of this analysis, a " subsidy in kind " is something that primarily promotes private ends as contrasted with collective ends. The criterion for a " private end " is that a service or commodity is used in different amounts by different users, according to their habits, tastes, or business. In this sense, the user or consumer is aware, or can be made aware, of using more or less of the service. Frequently, but not always, it is possible to charge a price for the service and so ration its use and consumption rate. Many of the services discussed here are priced. Most of them are underpriced in the sense that the users do not cover the cost of the resources required to provide the service. The degree of underpricing measures the " subsidy in kind." [1]

A subtle form of a " subsidy in kind " occurs through the operation of private activities which impose special costs upon the community. Many activities, because they create special health, police, or other social problems, require regulation to protect both the general public and/or the participants in the activity. For example, an industry which works with a volatile chemical could cause serious loss of property and life due to accidents. Accidents can be prevented, however, through the establishment of certain practices. But if the practices are costly, there is no way of guaranteeing that all members of the industry will employ them. Some individuals are always tempted to " try their luck " and save costs. Hence, there is a need to regulate and inspect the activity. The cost of that special regulation and inspection is a consequence of that industry just as much as the cost of the labor and materials that go into its product. If the producers and consumers of the commodity do not bear these costs, they are receiving a " subsidy in kind," insofar as their activity ties up scarce resources, the worth of which is not fully covered by market prices.

Such " subsidies in kind " promote private ends. That they promote private ends does not necessarily mean that they do not also promote the " general welfare." But they contribute to the " general welfare " only in the same sense that a nonsubsidized private industry makes such a contribution. The conception of a purely " public " or " collective " end, as contrasted with a " private " end, should be reserved for services and functions which are impossible to provide on an individual basis, or where fully pricing the service would defeat some collective goal. National defense is a clear example of the former; free public education, of the latter. Activities which seemed clearly to fall into this category were excluded from scrutiny.

In identifying subsidies in kind, this study does not attempt to assert that such subsidies *should* be eliminated. To do so is to assert a value judgment. For example, if a community wishes to provide electric energy, or milk, to all users at a zero price, that is its privilege. At a limit, it may wipe out the pricing system (although short of utopia it will have to develop some alternative mecha-

[1] For a fuller discussion of subsidies in kind, collective ends versus private ends, and related concepts, see Earl R. Rolph, *The Theory of Fiscal Economics*, (Berkeley: University of California Press, 1954), pp. 20-37, 44-50.

The approach employed here draws heavily upon Rolph's work; however, no effort is made to follow his conceptions precisely.

nism for allocating and rationing scarce goods and services). But underpricing and subsidies in kind do incur a cost in the form of displaced resources that must be utilized to provide those subsidies. The purpose of this study is to show the amount of such subsidies that exist in the City of Los Angeles. As such, it provides an insight as to how the City may raise additional revenue, or eliminate taxes, or both.[2]

City government activities which promote private ends may be classified into three groups. First, there are activities of private individuals and groups which require special regulation and supervision in order to maintain the general welfare. These are activities for which it is necessary to invoke police power to insure that the activity is conducted in such a manner so as not to injure either the general public or the participants. For example, the use of elevators and boilers creates a possibility of special hazards that are clearly attributable to that equipment. Private operators of elevators and boilers cannot all be relied upon to conduct their activity in such a way as to avoid excessive hazards. Hence, they are regulated and inspected.

The cost of regulation and inspection is a social cost that stems from the particular activity. A case can be made for covering these costs by an inspection fee or permit imposed on the operators and owners of the equipment. To provide this inspection service free of charge constitutes a "subsidy in kind." Hence, the special fee or license eliminates, or partially eliminates, the subsidy by becoming a cost to private parties involved in the activity.

A second type of service which warrants special fees are those which private business firms could provide but which city departments can provide more economically. This may be due to the fact that they possess special facilities or skills, which are mainly employed to perform some more general government function; because the activity is considered a "traditional" government function; or because a special inspection function is tied closely to the satisfactory performance of the activity.

For example, the street maintenance agency of a city can perform trenching tasks for private contractors and utilities. This job could be done by private contractors, although the city would have to inspect the work to maintain standards required for streets. By having a city agency which normally does street repair work perform the task required by private groups, an existing body of skills and equipment is employed more intensively and efficiently, and the need to subject the work to a special, formal inspection process is eliminated.

Trash collection and sewage disposal could be performed by private operators under a public utility type of organization with prices charged the users. Indeed, the private public utility concept is employed in many cities for this job. Here, however, tradition has a hold, and tradition is enforced by the need to maintain certain sanitary and public health standards.

A third class of city activities are those which are strictly enterprise func-

[2] Nor do these remarks imply an objection against subsidies in principle. Indeed, subsidies — both "in kind" or outright money subsidies—are effective ways of getting things done and attaining desirable social or economic goals. There is a presumption in my thinking, however, which is a value judgment, that subsidies should be justified by the recipients. If such justification is lacking, it is still appropriate for the government to promote private ends; but in doing so, it should charge the full cost for the services as measured by resources displaced from alternatives.

tions whereby the services are allocated to users by prices. Their counterpart can be found in private public utilities or transportation agencies. Water, electric power, transportation facilities such as harbors and airports, or public transportation systems are common examples. The reason city governments own and operate such enterprises is usually found in past history (which is not sufficient justification) or in a desire to subsidize the provision of the service.

TABLE I

ANIMAL REGULATION DEPARTMENT

Fiscal Year	Total Department Expenditures	Total Department Receipts	Difference—Receipts Less Expenditures
1951–52	$445,959	$428,688	$ 17,271
1952–53	481,684	466,375	15,309
1953–54	490,147	464,927	25,220
1954–55	558,869	524,510	34,359
1955–56	561,968	494,698	67,270
1956–57	639,706	529,608	110,098
1957–58	707,360 [a]	538,951	168,359
1958–59	744,927 [b]		

[a] Estimated.
[b] Budgeted.
Source: City Budgets and Controller's Reports, 1951–52 through 1958–59.

The next three sections treat each of these three major categories in turn, as they apply to the City of Los Angeles. The estimates, by City departments, bureaus, or enterprises, are based on fiscal 1958-59 budget estimates and data for prior years. On the whole, the estimates of "subsidies in kind" are conservative. For example, in the case of our category I activities, no attempt was made to impute all overhead costs that a service might generate. In category II items, no attempt was made to impute a cost of capital to equipment (e.g., garbage collection trucks) employed to provide the service; although it is argued that the sewer service charge should cover the interest costs (which are low due to tax exempt bonds) on sewer bonds. For city enterprise functions, like the harbor, airport, and water agencies, we employed modest rates of return on invested capital; but by no means a rate comparable to privately-owned capital. We were not so gentle, however, with the Bureau of Power. Hence, on the whole, these estimates err on the conservative side. This is through deliberate choice. Such a choice makes our main point, that herein lies a rich source of additional revenue, much stronger.

Part II—Regulatory Activities

A. *Animal Regulation*

The Animal Regulation Department controls the animal population within the City and enforces regulations designed to maintain standards of humane treatment of animals. This activity involves licensing of dogs, the collection of license and pound fees, and the conduct of a rabies control program.

Table I shows the Department's receipts and expenditures since 1951-52. In recent years, the spread between receipts and expenditures has increased with a deficit of $110,000 for 1956-57 and $168,000 for 1957-58. This trend reflects increasing costs of conducting operations, a slight increase in physical workload, and a constant license fee. Obviously, the fee has not been increased to cover the increased cost of operation.

An increase of license and pound fees appears justified on the principle that the owners of animals are the ones whose activity necessitates the functions of this Department. The only alternative to regulation is complete outlawing of pets, which is within the City's power to do. An increase of fees, to cover the cost of this operation and eliminate its deficit,

would restore to general government functions an amount of from $168,000 to $175,000.

B. *The Building and Safety Department*

The Building and Safety Department performs regulatory and inspection functions affecting building and construction and the operation of mechanical equipment in buildings such as elevators and boilers. It also conducts general City functions such as maintenance and operation of the police and fire alarm system, and the implementation of slum prevention and correction programs. The regulatory functions, including inspections, are clearly attributable to, and necessitated by, the activities of those who construct buildings and operate equipment within buildings.

The Department collects fees from builders and operators of the equipment. For 1957-58, the Department's budget was $5,369,000. Of this amount, $563,000 was required for general Department administration and $1,316,000 was required for general City functions such as maintenance and operation of the fire and police alarm system. The remainder, $3,490,000, was budgeted for the Department's regulatory and inspection functions. On the basis of these figures, about 75 per cent of the Department's general overhead and administrative cost of $562,000 is attributable to the regulatory function. This amount is about $422,000 which, when added to the $3,490,000 identified with regulation and inspection, brings the total to $3,912,000.

During the year for which these budget appropriations applied, the Department collected $3,457,000 in fees and permits. The regulatory and inspection function, therefore, incurred a deficit of around $455,000 relative to the fees charged. An upward revision of fees to cover this deficit appears warranted.

Table II provides an indication of important sectors of the department's workload which account for a major portion of the deficit. These data show that five inspection functions which during the year 1956-57, the last year for which complete data are available, were responsible for a deficit of over $220,000. During that year, the Department's deficit associated with its regulatory function was smaller than the estimated $455,000 of 1957-58.

TABLE II

BUDGETED EXPENDITURES AND REALIZED FEES FOR SELECTED BUILDING AND SAFETY DEPARTMENT INSPECTION FUNCTIONS, 1956–57

	Budgeted Expenditures	Receipts	Deficit
Boiler Inspection	$ 91,767	$ 29,539	$ 62,228
Elevator Inspection	69,019	37,835	31,184
Plumbing Inspection	612,689	523,186	89,503
Electrical Inspection	712,552	688,613	23,939
Heating and Refrigeration Inspection	160,291	146,317	13,974
Total Deficit			$220,828

Source: City of Los Angeles, Mayor's Budget 1956–57; Controller's Report, 1957.

The data in Table II are based on Department budget appropriations to the activity, as presented in the Mayor's 1956-57 Budget, and actual receipts for the same year. These data treat only direct expenditures associated with the activity, and make no attempt to allocate department administration costs; consequently, they understate the extent to which fees and permits failed to cover the costs.

C. *Health Department*

The Health Department has a dual role. It performs general welfare functions through the operation of clinics for the underprivileged, conducts health education in the schools, and controls communicable diseases. It also carries out a regulatory function through inspection and enforcement of City Ordinances to regulate private commercial activities such as food handlers, institutions, hotels and rooming houses, industrial establishments and milk sanitation.

Of a total Department budget of $4,392,000 for 1958-59, the inspection functions are estimated to incur direct costs of over $1,088,000. General welfare functions will require $2,031,000; and Department administration and supervision—$1,263,000. On the basis of these amounts, about one-third of the administration and supervision costs could be safely attributed to the regulatory function. The regulatory function, therefore, appears to cost the city nearly $1,500,000. This figure is probably conservative, since it does not allocate any of the Department's laboratory services costs, which for 1958-59 is a budgeted $212,000, to the regulatory function.

The City Clerk collects health fund deposits, which are in essence fees or permits imposed upon businesses whose operations require special health measures and, hence, inspection. In 1956-57, these deposits totaled nearly $422,000; preliminary data for 1957-58 indicated they were up 7 per cent for that year, or about $450,000. Hence, the difference between the cost of the health inspection function and anticipated fees is roughly $1 million. It appears that the entire health fee structure requires overhauling. Not only could existing fees be raised, but also they could be extended to other activities which currently require inspection but upon which no fees are imposed.

D. *Fire Department*

The Los Angeles Fire Department, like those of most municiplities, issues permits for activities which incur special fire hazards, as well as for the operation of facilities such as theaters and public gatherings where fires could cause a serious loss of life. The Department also conducts inspections to insure the maintenance of safety standards and practices in accordance with City Ordinances. Unlike most major cities, however, Los Angeles does not levy fire permit fees, except for petroleum refining and production.

Fire prevention activities are carried out by the Department's Fire Prevention Bureau which issues permits and conducts inspections, and by the Department's field forces which also conducts inspections. For the 1958-59 year, the Mayor's budget allocated $767,320 to the fire prevention function. Since much of this activity centers around identifiable businesses and activities which create special fire hazards, it appears warranted to charge fees for the fire permits which are issued for them. The level of fees should be sufficient to cover the cost of the necessary inspection function. The structure of fees, as between activities, should be established to reflect the inspection workloads each one requires. This suggestion is based on the principle that the cost of preventing fires in activities which are identifiable as special fire hazards should be felt by the private individuals who choose to participate in those activities. Failure to apply this principle constitutes a subsidy. No particular reason is

apparent why the general taxpayer should provide such a large subsidy.

It may not be desirable to recover the full amount of the inspection costs by special permits. Some of the inspection activity centers around charitable institutions, schools, and other non-profit organizations. The nature of these activities is itself justification for a subsidy. Recently, the Fire Department has suggested a schedule of fees which are estimated to yield from $200,000 to $300,000. This amount may be something of a compromise.

The Fire Department provides special fire suppression service for municipal airports (Los Angeles International and Van Nuys) and the Los Angeles harbor. For 1958-59, the Department has budgeted $724,730 for the airports, and $87,331 for the harbor. Both types of activity create special fire hazards and require special fire suppression methods and apparatus, as recognized by the Department's explicit budgeting for the purpose. Both activities provide special services to particular groups—the beneficiaries of ocean shipping and air transport. Both the municipal harbor and airports are profit making enterprise activities. In 1956-57, for example, the Harbor Department reported a profit of $3,326,000; the Airport Department, $2,061,000. Should the City charge these enterprises for the special services it provides them, the means to pay exists.

To summarize, the Fire Department could institute inspection fees for those activities for which it already issues permits and requires special fire prevention endeavor. These fees, at current levels, should be designed and structured to raise from $200,000-$300,000. In addition the Harbor and Airport Departments could pay for the special services they obtain from the Fire Department out of the revenues they obtain from services they provide their customers. Such payments would add another $1,512,000 to general City revenues. The total obtainable through the Fire Department would be an additional $1,712,000 to $1,812,000.

E. *Police Department*

Many legitimate private activities require special police attention over and above that necessitated by the provision of justice and protection for the ordinary citizen. Certain activities are potential sources of crime, special objects of criminal activity, or causes of disturbance, and, hence, require special surveillance and inspection. Examples are pawn shops, pool rooms, bars, dance halls and used car lots. Los Angeles presently recognizes this factor through a system of Police Commission permits and fees. In 1956-57 the Police Commission granted 15,285 permits and collected $165,345.

Recently, the Police Commission recommended a new schedule of fees. The new schedule involves an increase in only a portion of the total number of fees. The new schedule, based on the number of permits issued during 1956-57 would provide around $240,000 as compared with the $165,000 revenue obtained that year. This would yield an additional $75,000 in revenue.

A recognition of these factors suggests that the additional $75,000 in fees that could be obtained by adopting the Police Commission's recommended fee schedule is probably very conservative compared to what could be gained if a thorough revision of the fee and permit structure were undertaken. Yet, in the

absence of a comprehensive study of the Police Department's workload, it is impossible to estimate the amount that could be gained. Hence, the conservative $75,000 figure is used in this study.

F. *Parking Meter Receipts*

Receipts from parking meters in Los Angeles have risen from $460,000 in fiscal 1957 to $560,000 in fiscal 1958 and were estimated to be $630,000 for fiscal 1959. In fiscal 1956 receipts from on-street parking in the major cities in absolute and per capita terms were as follows:

City	Total Receipts (thousands of dollars)	Per Capita Receipts
New York	$5,037	$0.64
Chicago	2,397	0.64
Philadelphia	1,043	0.50
Los Angeles	368	0.16
Detroit	678	0.36

Source: *Compendium of City Finances, 1956.*

Not only does Los Angeles receive the lowest per capita yield of the five major cities from parking meter revenues, but the total receipts in Los Angeles from this source ($368,000) were also exceeded by eight of the thirteen cities of from 500,000 to 1,000,000 population and by four of the cities of smaller size.

These figures in themselves do not indicate that parking meter charges in Los Angeles are out-of-line, for they reflect the amount of metered parking area which exists, the size, nature, and location of commercial facilities, and other factors. Yet, in a city which has more cars per capita than any other major city and also increasing traffic congestion, the provision for on-street parking becomes a very costly service. On-street parking facilities incur heavy social costs by contributing to problems of traffic congestion and control and general inconvenience.

In contrast, privately owned parking lots in commercial districts use equally if not less valuable real estate, but the service provided is priced in such a manner as to yield an economic return. (If they were not so priced, the property would be used for some other purpose.) Rates charged for on-street parking could be more comparable with the rates charged by private interests. The difference in costs between the two types of parking may, of course, be justified by the absence of any direct operating costs for on-street facilities. To offset this factor, however, is the fact that on-street parking imposes a hidden cost in the form of reducing the efficiency of the streets to perform their primary function of transportation. These costs are very high. Those who impose them could be expected to pay for the service they receive.

As fees for on-street parking were appropriately scaled upward throughout the City, to approach the going commercial rates for commercial parking lots, rates would perhaps increase over all by a factor of three or more, which would yield over $1-$1.5 million additional revenue.

G. *Summary of Regulatory Activities*

The following table summarizes the additional revenues that could be obtained from additional fees in the regulatory areas discussed above:

Animal Regulation	$ 168,000–$ 175,000
Building and Safety	455,000
Health Department Fees	1,000,000
Fire Department	1,712,000– 1,812,000
Police Department	75,000
Parking Meter Receipts	1,000,000– 1,500,000
Total	$4,410,000–$5,117,000

It should be emphasized that there may be additional special regulatory

functions which were not treated and for which fees may also be designed. Also, in some of these areas, it may be possible to obtain more revenues than were indicated. For example, Police Commission and Fire Department fees could be designed to raise more revenues than indicated since the ones indicated here clearly do not cover the full costs of performing inspection functions or special services.

Part III—Special Services

A. *Public Works Department: Assessment Projects and Permits*

The Department of Public Works through its Bureaus of Engineering, Contract Administration, Standards, Rights of Way and Land, and others, has responsibility for construction affecting public facilities. In performing this role, it renders many services to special assessment districts within the City. For example, a sub-divider may want to transform some undeveloped land into a tract for new housing. This requires the construction of streets, sewers, street lighting and other facilities. The procedure will be to establish an assessment district whereby the contractor, and ultimately, the property owners will pay for the new facilities. The actual construction of these facilities is performed by private contractors. However, the Department of Public Works performs various necessary functions to insure that these public facilities are properly planned, engineered, inspected, and that the contracts are properly administered.

The services the City provides are significant. Under present procedures the charges for the work done by the City are assessed against the property in the assessment districts. These charges are limited to 12 per cent of the contract price of the work or $500, whichever is the larger. For example, if the contract cost of a project in a special district were $100,000, which would be the amount received by the private construction contractor, the City would levy an additional $12,000 against the district to cover the cost of its services. This 12 per cent factor for fees is far too low.

Table III shows the cost of direct labor incurred by the City on assessment work projects during 1956-57, the contract value of all the assessment projects treated and the revenues received.

TABLE III

DIRECT LABOR, ASSESSMENT WORK PROJECTS

Direct Labor of City Revenues	
Bureau of Engineering	$ 626,712
Bureau of Contract Administration	406,297
Bureaus of Right of Way and Land, Standards, and Street Lighting	115,921
Total Direct Labor Costs	$1,148,930
Revenues Received Under Existing Procedure (based on 12 per cent of contract costs of projects) ...	480,888
Cost to City	$ 668,042

Source: Report No. 1, Bureau of Accounting, City of Los Angeles, April 7, 1958.

The direct labor costs to the City for administering, planning and overseeing these projects exceeded revenues by more than $668,000. This was the "out of pocket" cost to the City of the "12 per cent rule." This cost does not reflect overhead costs for the respective bureaus or the Public Works Department, retirement reimbursement costs for the personnel services, or depreciation on bureau or department equipment and facilities. A careful study by the City's Bureau of Accounting places these overhead costs at over

$571,000. Addition of this amount to the direct labor, "out of pocket" costs, indicates that special assessment projects cost the general taxpayer at least $1,239,000 during 1956-57.

The year 1956-57, however, was exceptional in that several major assessment projects occurred to swell the workload and the fees beyond normal level. For more typical years, it is anticipated that the workload will be about 60-65 per cent of the 1957-58 fiscal year. Hence, the normal deficit for these assessment activities would be between $775,000-$800,000. The City should be reimbursed for the special services it provides assessment districts to prevent these deficits.

The Public Works Department also provides services and supervises activities connected with "B" permits. A "B" permit is required when private groups wish to effect alterations on curbs, sidewalks, or to construct such facilities as may be required for subdivisions. For services provided, the Public Works Department can charge the full direct labor costs plus 15 per cent. This 15 per cent factor is far below realistic overhead and other costs other than direct labor. A study by the Department indicates that the overhead costs for these activities was over 35 per cent. The City should charge, therefore, an additional 20 per cent of direct labor costs due to "B" permits—a factor of 35 instead of the present 15 per cent.

During 1956-57 the direct labor costs associated with "B" permits was over $621,000. The City charged $714,000 for these services through the application of the 15 per cent factor. If it had applied the 35 per cent factor, total receipts would have been over $838,000. An additional $122,000 in revenue would have been forthcoming. For future years, the application of more realistic overhead rates to the costs for "B" permits will yield the City an additional $120,000-$130,000.

Finally, in its permit and inspection function, the Public Works Department conducts a variety of smaller tasks, such as the granting of Class "A" permits for minor repairs on sidewalks, curbs, etc., the provision of manhole opening permits, and other miscellaneous activities. The fees charged for these permits also require revision to compensate for the rising costs associated with inspection and issuance. The adoption of a more realistic schedule of fees for "A" permits, which was recently prepared by the Department, would yield the City an additional $100,000 in revenue.

To summarize, a revision of the Public Works Department's fees and permits, to reflect current expenses and a reasonable overhead for its activities associated with private construction that bear upon City facilities, would yield the following additional revenues:

Type of Activity	Additional Revenue
Assessment Projects ...	$775,000–$ 800,000
"B" Permits	120,000– 130,000
Other Permits	100,000
	$995,000–$1,030,000

B. *Public Works Department: Street Resurfacing*

The Bureau of Street Maintenance resurfaces streets and performs other repairs required by private constructors and public utilities in the course of their activities. For example, the local gas company may have to repair or replace underground mains, which necessitates an excavation in the streets. Upon completion of the task, the City resurfaces the trenches and does whatever other work is necessary to restore the

street's original state. The City charges a fee based upon a schedule for various types of work done—for example, the cost of resurfacing a concrete street is $1.20 a square foot; sidewalk resurfacing at present is $.80 a square foot. These rates are fixed in the Municipal Code and were established in 1952. They are also based only on direct labor and material cost which prevailed at the time they were set. They are obviously much too low for the present period, since costs have risen substantially since 1952.

A more realistic set of rates for street work, which recognizes present costs, including overhead, has been suggested by the Public Works Department. For example, the proposed new rate for concrete resurfacing is $2.45 a square foot; for sidewalk resurfacing, $1.15 a square foot. Had these rates been in effect during 1956-57, the City would have billed customers $3,417,000. Actually, in 1956-57 billings for street resurfacing were only $1,883,000. Had it applied these more appropriate rates that year, the City would have gained $1,534,000; the amount by which the City subsidized private groups and individuals.

Trench resurfacing activity during 1957-58, however, was about 28 per cent less than it was in 1956-57. The activity, is erratic, since it is tied to utility repair operations and construction. For this reason, the additional amount the City would gain from adopting the proposed schedule of fees would probably vary over future years from $1.2 million to $1.8 million.

C. *Public Works Department: Bureau of Sanitation*

The City's Bureau of Sanitation performs two major sanitation tasks: it operates and maintains the sewage system, and it collects and disposes of rubbish and trash. It is convenient to treat these activities separately.

1. *Trash and refuse disposal.* The collection and disposal of trash by the City has undergone a marked change in recent years. Traditionally, it confined its activity to the collection and disposal of garbage and non-combustible rubbish. From 1947 through 1950 it handled yearly between 350,000-360,000 tons of refuse. Beginning in 1950, however, the advent of the home garbage grinder markedly reduced garbage collections, despite a rapidly growing population, and non-combustible rubbish collections changed slightly. It is estimated for the present 1958-59 fiscal year, total collection of garbage and non-combustible trash will be 300,000 tons.

For most of Los Angeles' history, the major type of refuse—combustible trash—was burned by private individuals themselves. This practice intensified the City's well-known smog problem. By 1956-57 it was in the business of collecting combustible rubbish on a limited scale when it gathered 48,000 tons of material in selected districts. At present, it is collecting combustibles in all sections. Total estimated tonnage for the current year is over 614,000 tons. Table IV shows the impact of these changing workloads upon the Sanitation Bureau's budgets.

The amounts show in Table IV are direct expenses only—labor, supplies and equipment; they do not include Department administration and overhead or City contributions to employee's retirement. An additional 40 per cent of direct labor cost should be applied to cover these overhead elements. For the 1958-59 fiscal year, direct labor costs

were budgeted at $6,350,000. Application of the 40 per cent factor indicates an additional $2,540,000 that the trash and rubbish collection functions cost the City. This brings the total estimated costs for the 1958-59 fiscal year to $11,913,000.

This sanitation service is clearly one that individual users can identify. For this reason, a majority of cities, especially on the Pacific Coast, charge users a fee for refuse collection and disposal. A recent survey indicated that 120 of 194 western cities collected fees from householders.[3] The majority of cities charge fees ranging from $1.00 to $1.50 a month. Many cities franchise private collection firms and in the process often collect a franchise tax which contributes to general city revenues. A large variety of systems exist in terms of services provided. For example, Santa Barbara recently instituted a system whereby a privately franchised company picks up mixed refuse for a charge of $1.75 a month. Paramount, California, employs a private concern and residents pay a flat monthly rate of $1.25; commercial charges are based on volume and frequency, with charges ranging up to $155 a month for particularly heavy creators of refuse. Many cities have adopted a combined pickup, which eliminates the necessity of the householder separating garbage from other trash.

At present levels of operation, a system of fees could be designed for Los Angeles to yield from $14 to $15 million. That amount would cover direct costs, an estimated overhead cost of from $2.5 to $3 million, plus an allowance of from $2.5 to $3 million a year for equipment and facility replacement. At present, the City operates its refuse collection system with newly acquired equipment and facilities. These items will have to be replaced and augmented over future years. It should be unnecessary to fund these future expenditures from general tax revenues.

TABLE IV

TRASH AND REFUSE DIRECT EXPENSE, CITY OF LOS ANGELES, 1953–54 THROUGH 1958–59
(Thousands of dollars)

Expense	Year					
	1953–1954	1954–1955	1955–1956	1956–1957	1957–1958	1958–1959
Refuse Collection	$2,817	$3,053	$2,942	$2,953	$3,114	$2,955
Combustible Rubbish Collection	....	....	300	3,381	3,151	4,917
Incineration	139	162	100	142	849	501
Total	$2,956	$3,115	$3,342	$4,476	$7,114	$8,373

Source: Mayor's Budgets, 1953–54 through 1958–59.

2. *Sewage service.* The City sewer system is an extensive and costly complex of installations and plants that provides a direct service to every household and business in the community. It is also service which can be at least approximately measured in terms of the use each private unit imposes on the system. In many respects, a sewer system is comparable to a public utility insofar as it could be operated and main-

[3] See Winston R. Updegroff and Francis R. Bowerman, "Refuse Collection and Disposal in 194 Western Cities," *Western City*, June 1958, pp. 32 and 38.

tained by a private concern under a franchise agreement.

Table V shows the direct cost of operating and maintaining the system, including the network of sewer mains, the pumping installations, and the sewage treatment plants. The costs shown in Table V are the Bureau of Sanitation's Budget allocations to the system's operating costs: they consist of direct labor, operating expenses, and only limited outlays for equipment. As such, they make no allowance for major capital facility costs or for the overhead factors previously discussed.

These operating costs for the sewer system run between $3.8 and $4 million a year. For 1958-59, direct labor costs were budgeted at $2,928,000. Application of a 40 per cent overhead factor to these direct labor costs adds another $1,171,000 to annual operating expense, which makes the total nearly $4.1 million.

These operating expenses, however, are not all the costs incurred by the sewer system. A public sewer system requires a massive investment of capital. For the Los Angeles system, $200 million is a conservative estimate of the capital investment. Over the years, this system has been financed mainly by the issuance of general obligation bonds. As of June 30, 1957 the City had nearly $140 million of general purpose, general obligation bonds outstanding.[4] Of this amount $95,885,000 are attributed to the sewer system.

The interest service charge on sewer system debt is nearly $2 million; the bond redemption costs are $5,475,000. The total annual capital costs on the existing system, are therefore nearly $7,775,000. These, plus the $4.1 million annual operating costs, make the total costs $11,875,000.[5]

TABLE V

SEWAGE OPERATION EXPENSE, CITY OF LOS ANGELES, 1953–54 THROUGH 1958–59
(Thousands of dollars)

Expense	Year					
	1953–1954	1954–1955	1955–1956	1956–1957	1957–1958	1958–1959
Sewer System Maintenance	$1,006	$1,095	$1,129	$1,429	$1,554	$1,553
Sewage Treatment Plants	1,755	1,887	2,044	2,357	2,604	2,229
Total	$2,761	$2,982	$3,173	$3,786	$4,158	$3,782

Source: Mayor's Budgets, 1953–54 through 1958–59.

D. *The Receiving Hospital*

The Receiving Hospital is the City's emergency medical arm. It provides medical care for prisoners, furnishes medical and surgical services for police officers and fireman injured in line of duty, and conducts physical examinations for Police and Fire Department appointees.

The most costly activity of the Receiving Hospital is that of providing emergency and initial first-aid treatment for persons injured or ill on public streets or in public places. This activity accounts for the major share of the

[4] By "general purpose," is meant general obligation bonds issued for purposes other than financing the harbor, airport, and power and water systems. Outstanding total general obligation bonds were $190,441,000 as of June 1957.

[5] (See next page)

Hospital's budget. For example, of a total $2,127,000 budgeted for the 1958-59 fiscal year, $1,422,000 is allocated to emergency ambulance service and emergency treatment of civilians. This civilian activity consists of $656,860 for ambulance service; $765,770 for civilian emergency treatment.

This service has a clear counterpart in private hospitals which charge fairly standard fees. Only sheer chance determines whether the accident-afflicted Los Angeles resident or passer-through receives emergency hospital or ambulance service from the Receiving Hospital or from a private hospital in the area where the accident occurs. If a person obtains emergency care from a private hospital, he is billed an appropriate amount. More than likely, some accident or medical insurance plan or policy pays the fee. If the recipient is not insured, a private hospital will compel him to pay his bill more or less promptly. The provision of $1.4 million worth of free services by the City, therefore, is something of a lottery in terms of the benefits private citizens receive. Those who get these free benefits do so on no other criterion than pure chance. For these reasons, a strong case can be made that the Receiving Hospital charge fees comparable with those imposed by private hospitals.

The objection may be raised that some of the Receiving Hospital patients cannot afford to pay. This same problem arises, however, with regard to all hospitals; but that is no basis for holding that free services be provided to all. In the case of unfortunates who cannot pay for medical care, whether it be emergency or non-emergency, arrangements exist which can handle the financing. Recently, the Los Angeles County Hospital indicated a willingness to compensate the City Receiving Hospital for care it provides those who would qualify for free County medical services. Naturally, the City is in no position to avail itself of this offer since it does not charge those who are capable of paying.

To summarize, there appears to be no objection either welfare or practical, to the Receiving Hospital adopting a schedule of fees to cover the cost of services it provides private individuals. To adopt such a system would provide the City an additional $1.4 million in revenue at the prevailing rate of activity.

E. *Summary on Special Services*

The following table summarizes the amounts that the City could gain from charging fees that would cover the costs of the special services it provides.

Estimated Increase in Receipts From Fee Adjustments		
Public Works Department: Assessment Projects and Permits	$ 995,000	$ 1,030,000
Public Works Department: Street Resurfacing ..	1,200,000	1,800,000
Public Works Department: Bureau of Sanitation Trash and Refuse Disposal	14,000,000	15,000,000
Sewer System	12,000,000	
Receiving Hospital ...	1,400,000	
Total	$29,595,000	$31,230,000

[5] Many cities impose sewage service charges: Detroit, New York, and Philadelphia are the largest that do so. Forty-one California cities and the East Bay Utility District, which includes the Municipalities of Alameda, Berkeley, Oakland, and others, employ some charge explicitly associated with sewer service. The charging methods employed vary widely. A common method is a flat monthly fee per residential unit with special charges, usually based on water consumption, for industrial users. Kansas City, Missouri, and other cities, relate the charges entirely to water consumption.

Part IV—City Enterprise Activities

This section examines four enterprise activities—the Harbor and Municipal Airport Departments, and the water and power systems. Each of these activities charge prices for the service it provides users. In varying degrees, their finances are independent of City finances. Each organization also reported an accounting profit from its activities. Only two of the activities—water and power—make a financial contribution to the general City government. The Harbor and Airport Departments, on the other hand, obtain direct money contributions from the City despite their monetary profits. Each of these activities merits special appraisal.

A. *The Harbor Department*

The Harbor Department operates Los Angeles' municipal harbor in the San Pedro—Wilmington area. Over the years, the City acquired land and constructed the facilities through bond issues, federal government grants, and the plowing back of profits.

As of June 1957, the harbor facilities and land were carried on the books at an initial cost minus depreciation value of $84 million. This is undoubtedly a very conservative figure since much of the property was acquired many years ago when costs were considerably lower. As of June 1957, the Department held over $100 million of assets. Table VI shows the composition of those assets and the claims against them, for the years 1953 through 1957.

TABLE VI

HARBOR DEPARTMENT ASSETS AND LIABILITIES
JUNE 1953 THROUGH JUNE 1957 *
(Thousands of dollars)

	1953	1954	1955	1956	1957
Assets					
Current Assets	$ 7,407	$ 8,116	$ 9,722	$11,920	$ 14,332
Fixed Property and Land	79,766	80,131	79,727	82,010	84,319
Other	830	514	1,225	773	1,361
Total *	$88,003	$88,761	$90,674	$94,703	$100,012
Liabilities					
Current Liabilities	$ 774	$ 438	$ 311	$ 471	$ 368
Bonded Debt	6,701	6,091	5,477	4,866	4,256
Other	455	148	861	1,073	2,888
City Equity	80,073	82,084	84,025	88,293	92,500
Total *	$88,003	$88,761	$90,674	$94,703	$100,012

* Totals in this and following financial exhibits do not necessarily balance due to rounding.
Source: Controller's Reports, City of Los Angeles.

It can be seen that of the total $100 million assets which comprise the harbor system, $92.5 million represent an investment by the City. In addition,

An interesting feature of the Kansas City technique is that the sewage charge is based upon water consumption that occurs during the winter months in order to avoid including water consumed for garden purposes in the criterion. Such a method, by employing the rainy season months of November through April as a base, could provide a satisfactory means of attributing sewage use to individual Los Angeles residents. The costs of the service could be so allocated to users, added to water bills. This method need not be expensive to administer, especially with the aid of modern data processing equipment.

the City had bonded obligations of $4,256,000 outstanding, which are liabilities against the Harbor Department, but which are backed by the City's bonding and taxing capacity.

Table VII shows the profit, operating expense and income data relevant to the Harbor Department for the fiscal years 1952-1953 through 1956-1957. The "cash payoff" is the difference between operating income and expense, and measures the dollars which become available to managers during the given year. Depreciation and bond interest are charges which must be deducted to arrive at the conventional business profit concept.

For each year shown in Table VII the Harbor Department turns over to the City an amount which closely matches, or slightly exceeds, the interest charge on outstanding harbor bonds. The City, however, pays out considerably more on harbor bonds, as shown in the Table. The difference between what the Harbor Department pays the City and what the City pays out is roughly the repayment of principal on previously-issued bonds. In other words, although the Department pays the City interest on its debt, it does not pay off the principal as it falls due. This is a rather peculiar arrangement for a business venture. Its net effect is that the City increases its equity in the harbor. It does so, however, out of funds appropriated from general revenue sources.

Apart from the interest payment which the Harbor Department turns over to the City, the remainder of the "cash payoff" derived from operations (including accounting profits) are retained by the Department for further harbor improvements. In this manner, the Department attains a high degree of independence from the City which owns it. It also obtains command over funds which an ordinary business would have to apply to dept repayment. Finally, the Department obtains from the City special fire suppression service and facilities free of charge.

Although the Harbor Department shows an accounting profit, it is not an impressive one when viewed as a return on the resources invested in the enterprise. Table VII also shows the yearly percentage return on the total assets and the return on the City equity since 1952-1953 up to 1956-1957. For 1956-1957, the best of the five years, the overall return on total assets and on the City equity was only 3.6 per cent. Capital invested in private business enterprise earns from 15 to 20 per cent before corporate income taxes. (Municipal enterprises are not subject to Federal income taxes.) In other words, the capital of the citizens of Los Angeles is invested in an activity which earns only 3.6 per cent. If it were available to individuals, even the most conservative minded ones could realize 4.25 per cent in a saving and loan association. The difference between the return on the harbor investment and what the capital could earn in private enterprises is a measure of the subsidy the City is providing harbor users. Indeed, the subsidy to harbor users is even greater because about $1,100,000 of the Department's profit are accounted for by oil royalties rather than by strict harbor activities.

It is not suggested here that the City should necessarily seek to run the harbor in such a manner so as to obtain a 15 to 20 per cent return on the $100 million investment. It has been a long tradition in the United States to subsidize transportation in some measure, and in various forms. However, it seems reasonable to suggest that the Department revise its fees in such a manner as to re-

duce the magnitude of its subsidy to private interests, and shippers. In doing so, it could carry its own bond redemption requirements which would save the City over $600,000 a year. In addition, even a nominal one per cent rate of return on the City investment, to be contributed to the general fund, would afford another $1 million. If this $1.6 million is added to the cost of city-provided special fire services, which exceed $400,000 annually, the total of $2 million would be well within the $3.2 million profit the harbor obtains. Should the remainder be inadequate to finance additional expansion, then rates for harbor services should be revised upward so as to increase profits. If the upward revision in rates will tend to discourage harbor traffic (which is a subject requiring special analysis), then it is debatable whether further expansion is merited on any ground other than the desire to present shipping interests with an ever-increasing subsidy.

TABLE VII

INCOME, EXPENSE AND OTHER OPERATING DATA, LOS ANGELES HARBOR DEPARTMENT
1952–53 THROUGH 1956–57
(Thousands of dollars)

	1952–53	1953–54	1954–55	1955–56	1956–57
Operating Income	$5,229	$5,552	$5,524	$6,082	$7,992
Operating Expense	2,589	2,731	2,872	3,019	3,160
Cash Payoff	2,640	2,821	2,652	3,063	4,832
Depreciation	921	1,055	1,034	1,092	1,195
Other Expense	42	35	4	(29)	100
Interest in Bonds	331	301	271	241	211
Profit	1,346	1,430	1,343	1,759	3,326
Payments to City for Bond Replacement	341	310	280	250	220
Paid by City for Harbor Bonds	929	893	878	847	813
Return on Total Investment	2.0%	2.0%	1.8%	2.1%	3.6%
Return on City Equity	1.7%	1.7%	1.6%	2.0%	3.6%

Source: Controller's Reports, City of Los Angeles.

A question may arise regarding the effects of higher harbor fees upon the area's commerce relative to other Pacific Coast seaports. At present Pacific Coast harbors (most of the facilities of which are municipally or state owned) charge similar fees with only minor exceptions. This concord is attained by discussions and agreements between representatives of the respective harbors. The level of fees and their adjustments are based upon "costs." Hence, should labor and materials costs rise, the fees will also be increased. Apparently, however, if Los Angeles Harbor is an example, the "costs" included in the thinking of those who agree to establish coast-wide harbor fees do not include all of the cost items which a private business firm normally covers. This clearly does not include a competitive rate of return on investment. It thus appears that all of the Pacific Coast harbors are being subsidized by the municipalities in which they are located. It would seem that here is a situation in which Los Angeles could take the lead and attempt to induce all Pacific Coast harbors to raise their fees. As long as the mechanism for price fix-

ing exists, Los Angeles need not experience a structure of fees less favorable to shippers than those found at other ports.[6]

B. *The Department of Airports*

The Los Angeles Department of Airports owns and operates the International and Van Nuys airports. As of June 1957, its assets and liabilities were as follows:

Assets (Thousands of dollars)		Liabilities (Thousands of dollars)	
Current Assets	$12,966	Current Liabilities	$ 121
Land and Facilties (less depreciation)	28,044	Bonds Outstanding	14,250
Other	17	Government Grants and Other	9,270
		City Equity	17,397
Total Assets	$41,038 *	Total Liabilities	$41,038 *

* Figures do not necessarily balance due to rounding.
Source: Controller's Report, June 1957.

The most relevant points about this balance sheet are that physical assets held by the Department are valued at $28,044,000 and that the City has incurred bonded indebtedness to the extent of $14,250,000. Over $6 million of this indebtedness was instituted during the 1956-57 fiscal year. Most of this was unspent by the end of the year, which accounts for the high current asset figure. Another important point revealed by the balance sheet is that the City had by June 1957, invested $17,397,000 in its municipal airport system.

Table VIII presents recent revenue and performance data for the Department. The financial arrangement between the City and its Department of Airports is similar to the City-harbor relationship. The Department of Airports pays the City an amount which slightly exceeds interest costs on airport bonds. The City, however, pays a much greater amount to service airport bonds in the form of both interest and debt retirement payments. In this manner, in time the City will increase its equity in the airport system. This technique makes it possible for Department managers to retain a larger share of the enterprise's profits for further expansion. During 1956-1957 the airport venture cost the City $569,000, even though the Department enjoyed a profit of $2,061,000. (This cost to the City does not include the special fire suppression costs of over $700,000.)

There is no reason, other than the desire to subsidize the air transport industry and other airport users, why fees cannot be raised to permit sufficient profits to relieve the general taxpayer of this burden. Even at existing levels of

[6] Even if other ports should not agree to an upward revision of fees (despite many years of coordinated price fixing), it does not necessarily follow that Los Angeles would lose much (if any) commerce should the Harbor Department raise fees sufficiently to make a more satisfactory profit. Wharf and harbor fees are a small proportion of the total cost of ocean shipping. Consequently, the raising of fees to a level which would yield the Harbor Department a better return would be an even smaller proportion. Thus, the cost of shipping to or from Los Angeles harbor would be only slightly more than shipping from other Pacific Coast ports. It is very doubtful if this slight increase would deter shipping to or from Los Angeles in view of the area's other strong attractions to commerce and industry. All this, of course, poses a problem (slight as it is) only if other ports would not follow Los Angeles' example. This seems unlikely, especially when other municipalities which operate harbors are facing problems similar to those of Los Angeles.

operations and fees, there are sufficient earnings to compensate the City for honoring bond obligations on behalf of the Airport Department. To adopt such an arrangement will return to the City an additional $1,000,000. The Airport Department could still have some profits left to finance additional improvements if it raises its fees.

Even if the Airport Department raised its fees to accommodate the City on the bond redemption requirements, and to pay for its special fire prevention services, it should still be recognized that airport users will be getting a service at less than what it would cost if the airports were privately operated. The reason for this is that the municipal airports do not have costs comparable with airports operated by private firms. First, they pay no property taxes. Also, they are able to raise capital at interest rates lower than is possible for private firms because the bonds sold on the behalf of municipal enterprises are tax exempt.

Unlike the Harbor Department, which sets its fees in concordance with other harbors, the Airport Department sets its fees independently. Moreover, they are lower than they are at many similar airports. For example, the landing fee for scheduled airlines at Los Angeles International Airport is $.10 per 1000 pounds of aircraft maximum gross weight. For San Francisco, the rate is $.16 or $.17; for New York International (which has higher costs due to snow removal, etc.), the rate is $.20. Los Angeles International's fees are also markedly below Lockheed, Burbank. Although these fees are only a part of total airport revenues, they suggest that the Los Angeles Airport Department is underpricing its services.

It could be argued, therefore, that these privileges inherent in a municipal enterprise should be enjoyed by the citizens of the City in the form of enterprise profits contributed to the general fund. To forego the full measure of profits by charging users lower fees constitutes a subsidy. All that is being suggested here is that the subsidy not be as great as it presently is, and that the City

TABLE VIII

OPERATING FINANCIAL DATA FOR THE LOS ANGELES DEPARTMENT OF AIRPORTS 1952–53 THROUGH 1956–57

(Thousands of dollars)

	1952–53	1953–54	1954–55	1955–56	1956–57
Revenue	$1,731	$1,855	$2,231	$2,805	$3,603
Operating Expense	618	672	696	841	881
Cash Payoff	1,113	1,183	1,535	1,964	2,722
Depreciation	395	435	450	513	545
Interest	*	*	*	*	116
Profit	718	748	1,085	1,451	2,061
Payments to City	140	150	150	150	150
Paid Out by City	1,021	972	974	962	719
Return on Investment	2.5%	2.6%	3.7%	4.6%	5.3%
Return on City Equity	7.8%	7.0%	8.7%	9.9%	11.8%

* Interest costs not shown for these years.
Source: Controller's Reports, 1953–1957.

be compensated for the "out of pocket" costs that the Airport Department incurs. This amount is currently approximately $1,000,000 (plus the $724,000 special fire suppression costs noted in the discussion of the Fire Department). If the City insisted upon, for example, a 5 per cent rate of return on the $40,000,000 invested in the airport system, it could obtain a total of $2,000,000.

The system has grown rapidly in response to the rising population and economic expansion of Los Angeles. This growth has been financed by the sale of bonds and by plowing profits back into the enterprise. Unlike the Airport and Harbor Departments, the Bureau does not draw upon the City's general fund for payment of interest or principal upon its bonded debt. Rather, the system contributes to the City an amount which presently exceeds $3,607,000. Table X shows the Bureau's income performance during recent years.

TABLE IX

LOS ANGELES POWER SYSTEM, ASSETS AND LIABILITIES
(Thousands of dollars)

	1952–53	1953–54	1954–55	1955–56	1956–57
Assets					
Current Assets	$ 25,659	$ 26,959	$ 28,437	$ 37,889	$ 43,288
Fixed Plant (less depreciation)	342,568	387,753	431,927	466,847	493,643
Other	12,209	11,353	10,439	8,851	7,766
Total Assets	$380,436	$426,065	$470,803	$513,587	$544,697
Liabilities					
Current Liabilities	$ 8,596	$ 10,277	$ 12,957	$ 11,650	$ 13,485
Bonded Debt	147,001	176,403	207,144	241,078	264,515
Other Liabilities	8,237	8,963	9,936	10,635	11,462
City Equity	216,602	230,422	240,766	250,224	255,235
Total Liabilities	$380,436	$426,005	$470,803	$513,587	$544,697

Source: Controller's Reports, City of Los Angeles.

Although the Bureau compares with the nation's largest corporations in terms of assets and the type of activity it performs, it is less comparable in other respects. Because it is municipally owned, it does not make the profits or the contributions to the community as a whole in the form of taxes as do similar, but private, enterprises. It does, however, provide Los Angeles residents and business firms with very low cost power. This is possible because it operates under entirely different rules than do private utilities.

C. *The Department of Water and Power: The Power System*

The scope of the Los Angeles municipally-owned power system is seldom appreciated. With assets of over $544,000,000, it ranks among the largest enterprises. If it were privately owned, it would be the 28th largest utility in the nation. It is by far the largest municipally owned electric utility in the country. Of the total city-owned assets and property valued at over $1.471 billion, the Bureau of Power and Light owns and operates well over one-third. It is truly a "big business." Table IX presents balance sheet data of the Bureau for recent years.

Private utilities pay corporate, property and franchise taxes; the Los Angeles power system only pays property taxes (approximately $800,000 yearly) on property it owns outside the City. The Los Angeles system raises capital funds at lower interest rates than do private firms with the aid of tax-exempt bonds. Recently, the City power system could borrow new funds for approximately 3.75 per cent; a comparable private utility must pay as much as 4.25 per cent.

account for low electric power rates in Los Angeles.

It is instructive to compare the City utility system with the performance of its neighbor the Southern California Edison Company. Table XI presents these comparisons.

The Los Angeles power system is roughly half the size, in terms of assets, of the Edison Company. However, its asset earnings (earnings before taxes, interest, and depreciation charges) are only 23 per cent of the Edison Com-

TABLE X

LOS ANGELES POWER SYSTEM
INCOME FINANCIAL DATA, 1952–53 THROUGH 1956–57
(Thousands of dollars)

	1952–53	1953–54	1954–55	1955–56	1956–57
Income	$65,532	$69,136	$72,504	$80,917	$88,137
Operating Expense	33,854	39,308	43,939	51,110	60,380
Cash Payoff	31,678	29,828	28,565	29,807	27,757
Depreciation	9,209	9,858	10,846	11,977	13,180
Interest	2,948	3,101	4,116	4,940	5,960
Profit	19,521	16,869	13,603	12,890	8,617
Paid to City General Fund	2,859	3,049	3,259	3,432	3,607
Return on Assets	5.9%	4.7%	3.7%	3.5%	2.7%
Return on City Equity (invested capital)	9.0%	7.3%	5.6%	5.2%	3.4%

Source: Controller's Reports, City of Los Angeles.

Finally, private utilities must earn a return on invested capital which compares with what investors can make in alternative investments. A municipally-owned utility does not necessarily have to do so. For example, most private utilities now earn between 8 and 9 per cent on the stockholders' equity *after* paying a Federal corporate profit tax of 52 per cent. Before taxes, this profit rate is between 16 to 18 per cent. This 16 to 18 per cent profit rate compares with "return on city equity" shown in Table X which ranged from 3.4 to 9.0 per cent. Factors such as these

pany's. This is the result of the City system's low electricity rates. The Edison Company is authorized to charge higher rates because it must pay its taxes and obtain a normal return on the invested capital, including higher interest rates on its non-tax exempt bonds.

Another way of viewing the City power system is as follows: If it were operated as a private utility, and charged similar rates for its service, it would have an income performance similar to that of the Edison Company. Since it is only half the size, however, its assets would earn roughly $60 to $61 million a year, as compared with Edi-

son's $122,488,000. Given the City system's existing interest and depreciation charges which total over $19 million, it would, therefore, earn $41 to $42 million a year in profits as compared with its 1956-1957 profits of $8,617,000.

In effect, the City system foregoes a profit of at least $30 million in pricing its electricity at the present rates. This

TABLE XI

COMPARATIVE FINANCIAL DATA: SOUTHERN CALIFORNIA EDISON COMPANY AND LOS ANGELES POWER SYSTEM 1957 (Thousands of dollars)

	Southern California Edison Company [a] (1)	Los Angeles Power System [a] (2)
Total Assets	$1,054,889	$544,697
Income	217,136 [b]	88,137
Operating Expense	94,648	60,380
Asset Earnings	122,488	27,757
Interest	14,092	5,960
Depreciation	22,680	13,180
Taxes	52,027 [c]	4,383 [c]
Profit	31,567	8,617

[a] The data for the Edison Company are for calendar year 1957; those for the Los Angeles power system, fiscal year 1956–57.

[b] Income from power sales only.

[c] Taxes for Southern California Edison Company consist of $23,539,000 corporate income taxes and $28,488,000 other taxes, including property taxes; "taxes" for Los Angeles power system include $3,607,000 transfer to City and $776,000 property taxes on property outside the City.

Sources: (1) Sixty-Second Annual Report, Southern California Edison Company, 1957; (2) Comptroller's Report, 1957.

$30 million measures the extent to which the City system provides a subsidy in kind to users of electricity. In effect, the citizen of Los Angeles as a taxpayer and as an owner of a $500 million enterprise foregoes his share of $30 million in profits that the business could earn if it were operated like a private firm. As compensation for foregoing these profits, however, he has a lower electric bill. But the benefits of the resulting low-cost electrical energy accrue to Los Angeles citizens and businesses in direct proportion to their consumption of electricity. Some individuals and groups, therefore, benefit more than others; some individuals, in effect, are subsidizing others. Such a subsidy is difficult to justify.

The Bureau could revise its electric rates upward to make them more comparable with those charged by regulated private utilities, and declare "dividends" to the City to match the increased profits. The City could obtain an additional $30 million in this fashion. Individual citizens would have higher electric bills, but they would attain general tax relief. The benefits derived from a municipally-owned utility system through the favored ground rules it enjoys (no corporate tax, low interest costs, etc.) would accrue to citizens as taxpayers and not as consumers of electricity. Another means of attaining the same goal would be for the City to impose a tax upon electric power which would raise the same amount of revenue.[7]

[7] Some students may argue that municipal utilities should not generate revenue for general City purposes on the ground that the service prices necessary to attain this end would constitute an excise tax. It is further held that such higher prices contribute to a non-optimum allocation of resources because utilities are decreasing cost industries. Indeed, if anything, the service should be priced at less than full cost (or subsidized) to insure that market price equals marginal cost.

To adopt the policy suggested in the text, therefore, would eliminate the subsidy and the resulting closer approximation to the optimum outcome implicit in "decreasing cost industry" argument. This line of reasoning draws heavily upon the classic arguments of Dupuit and Harold Hotelling. See the latter's "The General Welfare in Relation to Problems of Taxation and of Railway and Utility Rates," *Econometrica*, VI (July, 1938), pp. 242-269.

There is still much ambiguity and confusion centering around this classic argument and its practical

Like the power system, the water system takes care of its bond service and redemption charges either by handling its revenue bonds directly or by reimbursing the City for payments the City makes on general obligation bonds which were issued for the system. In addition, the system makes a contribution to the City, which for 1956-1957 was $1,445,000. During the same year, the system made profits of $5,609,000, which represented a 3.4 per cent return on the City's equity. These income data are shown in Table XIII. Most of these profits ($4,164,000), however, were employed to build more water system facilities.

A case could be presented for the City's obtaining a 6 per cent return on its investment. Since the Water System is municipally owned, this rate is considerably below the earnings private capital obtains before corporate income and property taxes. A 6 per cent rate of return would give the water system a total profit of over $9,700,000 instead

TABLE XII

LOS ANGELES WATER SYSTEM, ASSETS AND LIABILITIES, 1953–1957
(Thousands of dollars)

	1952–53	1953–54	1954–55	1955–56	1956–57
Assets					
Current Assets	$ 13,375	$ 12,899	$ 12,222	$ 12,626	$ 14,148
Plant (less depreciation)	200,212	211,123	223,200	234,885	241,325
Other	1,720	1,696	1,771	2,092	1,726
Total	$215,307	$225,718	$237,193	$249,603	$262,199
Liabilities					
Current Liabilities	$ 6,301	$ 5,207	$ 6,533	$ 6,059	$ 6,156
Bonds	74,489	80,326	82,841	88,199	93,211
Other	3	5	3	4	2
City Equity	134,514	140,180	147,816	155,341	162,830
Total	$215,307	$225,718	$237,193	$249,603	$262,199

Source: Controller's Reports, 1953–1957.

applications. First, it is not correct that decreasing cost industries should be subsidized. The appropriate measure of the social cost of a service is the value of resources displaced from alternatives. This would be the average long-run, full-cost (including rent) of the service. That the quantity demanded is not sufficient to permit the industry (firm) to operate at some possible minimum point on its long run average cost curve is a purely accidental property of the state of consumer demand (position of the demand curve) and technology. It simply means that all indivisibilities are not fully exploited. To exploit those indivisibilities would require diverting resources from other alternatives by the subsidy device. The lower output of other alternatives would entail a loss of total utility that would exceed the gain in utility that ensues from the greater output of the subsidized activity. Hence, if all industries operate at long-run full cost (including rent), which competitive industries would do due to impersonal forces and which public utilities do by force of regulation, an optimum allocation of resources would result.

Second, it is questionable whether electric utilities, of the size encountered under present conditions (due to state protection and regulated monopolies) are in fact decreasing cost industries. A utility serving several million people appears large enough to exploit most, if not all, of the economies of scale implicit in the technology (this is a question of fact, however). Hence, at best it probably operates under constant cost conditions. Pricing so as to cover long-run marginal cost, and an opportunity return on investment would not be incompatible goals. To point to a utility's ability to sell non-peak-load power at prices below "full cost" does not prove that utilities are decreasing cost industries within the scale they customarily operate. Rather, it indicates a confusion between short-run and long-run marginal costs.

of the present $5.6 million. The water system would be able to contribute an additional $3 or $4 million to general City needs. As in the case of the Power System, water rates would be higher, but the need to raise additional revenues through taxes would be less. In the process, the benefits derived from the investment in the Water System would accrue more to Los Angeles citizens as taxpayers and less to them as water users.

expansion, or they would have to finance it by sale of bonds. Should they desire to finance expansion from earnings, they would have to raise charges for their services. But an argument can be made that prices should be raised anyway, as a means of avoiding subsidies to particular groups and on the ground that these enterprises should be run like a private business, to make a return on the invested capital that reflects its hire elsewhere.

TABLE XIII

Los Angeles City Water System
Income, Costs and Return on Investment
1952–53 Through 1956–57
(Thousands of dollars)

	1952–53	1953–54	1954–55	1955–56	1956–57
Revenue	$22,583	$24,596	$28,204	$28,985	$30,835
Operating Expense	12,523	13,352	14,353	15,132	16,583
Cash Payoff	10,060	11,244	13,851	13,853	14,252
Depreciation	4,404	4,748	5,294	5,668	6,083
Interest	1,894	2,184	2,346	2,354	2,560
Profit	3,762	4,312	6,211	5,831	5,609
Paid to City	1,005	1,006	1,108	1,208	1,445
Return on Total Assets	2.6%	2.9%	3.6%	3.3%	3.1%
Return on City Equity	2.8%	3.1%	4.2%	3.8%	3.4%

Source: Controller's Reports, 1952–1957.

D. *Summary on City Enterprises*

The amounts that could be gained from city enterprises are as follows:

Harbor Department	$ 1,000,000–$ 1,600,000
Airport Department	1,000,000– 2,000,000
Water System	3,000,000– 4,000,000
Power System	30,000,000
Total	$35,000,000–$37,600,000

With the exception of the power system, these amounts could be paid the City with only a slight or no increase in the fees charged for services insofar as recent profits are sufficient to cover them. The organizations, however, would have little to reinvest for further

The Power System would have to raise its rates significantly to be able to turn $30,000,000 a year over to the City. Such a rate increase would only mean that Los Angeles residents would have electric bills similar to those of their neighbors who are served by private utilities. They would gain as taxpayers in that the System earnings would reduce the need to raise additional funds by taxation.

Part V—Summary and Conclusions

Table XIV summarizes the revenue gains the City could achieve by revising and reforming its structure of fees,

service charges and prices for services. A total of from $69 to $74 million of additional revenues could be obtained, based on existing levels of operation.

It should be emphasized that these estimates are approximations; but, if they err, they err on the conservative side. In no case was an overhead factor employed to encompass the services that general City departments provide the individual service department or bureaus; only overhead factors for bureaus or departments were considered. For some functions, especially in the regulatory area, not even bureau or department overhead factors were included.

If these estimates are valid, it is apparent that the City of Los Angeles has ample opportunity to obtain additional revenue. These findings also suggest that other cities may have a lucrative source of revenue in the area of charging fees. To be sure, Los Angeles is exceptional due to its municipally-owned power system, as compared to other major cities. Yet the large amounts obtainable from other sources are still significant. If Los Angeles is typical in these non-power sources of revenue, then cities as a whole may have within their own control the means of eliminating their revenue problems.

TABLE XIV

ESTIMATED REVENUE GAINS FROM FEE AND SERVICE CHARGE REVISIONS

Department, Enterprise, or Function	Estimate Increment in Revenue (thousands of dollars)
Regulatory Activities	
Animal Regulation	$ 168–$ 175
Building and Safety	455
Health Department	1,000
Fire Department	1,712– 1,812
Police Department	75
Parking Meter Receipts	1,000– 1,500
Total, Regulatory Functions	$ 4,410–$ 5,117
Special Services	
Public Works Department Assessment Projects and Permits	$ 995–$ 1,030
Public Works Department Street Resurfacing	1,200– 1,800
Public Works Department Bureau of Sanitation	
Trash and Refuse Disposal	14,000– 15,000
Sewer System	12,000
Receiving Hospital	1,400
Total, Special Services	$29,595–$31,230
City Enterprises	
Harbor Department	$ 1,000–$ 1,600
Airport Department	1,000– 2,000
Power System	30,000
Water System	3,000– 4,000
Total, Enterprises	$35,000–$37,600
Grand Total	$69,005–$73,947

A MORE RECENT MEASUREMENT OF THE BUILT-IN FLEXIBILITY OF THE INDIVIDUAL INCOME TAX

LEO COHEN *

RECENT studies have suggested the limited importance of the built-in flexibility of the individual income tax for the years 1948-1953.[1] Since the data are now available through 1957, including some early data for 1958, further measurement and analysis are possible.

This study has two basic objectives. The first objective is to measure the built-in flexibility of the individual income tax for the years 1949-1958. Built-in flexibility is defined as the change in tax liabilities (T) associated with the change in adjusted gross income on taxable returns (AGI), holding constant the legal provisions for exemptions, deductions, and the 1954 tax rates. This measurement may be obtained by computing two components, i.e., the tax base flexibility, defined as the change in taxable income (TI) in relation to AGI, and the marginal rate of taxation, defined as the change in T associated with the change in TI.[2] The product of these two components equals the built-in flexibility.

The second objective is to determine the distribution of TI by tax rate brackets for the years 1949-1957. This distribution is significant in explaining the behavior of the marginal rate of taxation.

I. *Size of Built-in Flexibility*

TI is defined as AGI on taxable returns, less personal deductions and exemptions. Table I presents the AGI, TI, and T figures for the years 1949-1958. The information for 1954-1957 is now readily accessible in the respective issues of the U. S. Treasury *Statistics of Income*. For the years prior to 1954 a substantial amount of calculation was necessary to obtain the aggregates and breakdowns of TI.

Tax base flexibility is defined as the yearly change in TI in relation to the yearly change in AGI on taxable returns. Table II shows that the tax base flexibility was rather stable, varying from a low of 0.59 for 1952-1953 to a high of 0.68 for 1955-1956.[3] Fluctua-

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[1] See the classic article by Joseph A. Pechman, "Yield of the Individual Income Tax During a Recession," in *Policies to Combat Depression*—A Report of the National Bureau of Economic Research (Princeton University Press, 1956), pp. 123-145, and Leo Cohen, "An Empirical Measurement of the Built-in Flexibility of the Individual Income Tax," *American Economic Review*, May 1959, pp. 532-541.

[2] The tax base flexibility will tend to isolate the importance of the structure of exemptions and deductions, whereas the marginal rate of taxation segregates the contribution of the 1954 tax rate structure on the built-in flexibility of the individual income tax.

[3] The change from 1953 to 1954 is not included in Table II (or Table III) because of the 1954 revision of the tax code. These changes seem to preclude the meaningful use of a single time series for the period 1949-1957. Furthermore, the computation of the negative tax base flexibility (and negative built-in flexibility) for 1953-1954 seems highly unreasonable in the light of past experience. The lack of continu-

tions in either the tax base flexibility and/or the marginal rate of taxation are affected to some extent by the volatility of capital gains on returns reporting alternative tax. However, if one were to exclude the income subject to alternative tax from the AGI and TI figures and recompute the tax base flexibility, one would find an insignificant difference in the tax base flexibilities as reflected in Table II.[4]

TABLE I

ADJUSTED GROSS INCOME, TAXABLE INCOME, AND TAX LIABILITIES, 1949-1958

(in billions of dollars)

Year	AGI on Taxable Returns	Taxable Income	Tax Liabilities *
1949	$138.57	$ 71.65	$17.07
1950	158.55	84.30	20.65
1951	183.24	99.29	23.75
1952	196.59	107.42	25.08
1953	210.48	115.55	26.36
1954	209.67	115.23	26.67
1955	229.60	127.89	29.61
1956	249.55	141.40	32.73
1957	262.17	149.21	34.39
1958	262.25 **	148.87 ***	34.24 **

Source: "Statistics of Income, Individual Income Tax Returns."

* The tax liabilities are computed on the basis of 1954 tax rates.

** These figures are Internal Revenue Service estimates from a news release dated December 23, 1959.

*** Estimated by dividing $34.24 billion by 0.23.

The marginal rate of taxation is defined as the change in T associated with the change in TI. It was computed by obtaining a breakdown, by each TI rate bracket, of the distribution of TI and then applying the present tax rates to each year's distribution of TI. Table III indicates that the marginal rate varied slightly during the 1954-1957 period from a high of 0.23 to a low of 0.21 for 1956-1957. This was remarkably stable as contrasted to the 1949-1953 period in which the marginal rate showed no definite pattern in its variation from 0.16 to 0.28.

The over-all built-in flexibility of the individual income tax is computed by dividing the change in T by the change in AGI (which is the same as multiplying the tax base flexibility by the marginal rate of taxation). The magnitudes for the 1949-1950, 1950-1951, 1951-1952, 1952-1953, 1954-1955, 1955-1956, and 1956-1957 periods were 0.179, 0.125, 0.100, 0.092, 0.147, 0.156, and 0.132, respectively. For the 1954-1957 period the average built-in flexibility was roughly 0.145, as compared to 0.124 for the years 1949-1953.[5]

TABLE II

TAX BASE FLEXIBILITY, 1949-1957

Change (in billions of dollars)

Years	Total Taxable Income *	Adjusted Gross Income * (Taxable Returns)	Change in TI / Change in AGI
1949–1950	$12.65	$19.98	.633
1950–1951	14.99	24.69	.606
1951–1952	8.13	13.35	.608
1952–1953	8.13	13.89	.585
1954–1955	12.66	19.93	.635
1955–1956	13.51	19.95	.677
1956–1957	7.81	12.62	.620

* Based on data in Table I.

ous data, monthly or quarterly, and the 1953-1954 recession may well explain the negative or perverse responsiveness of the individual income tax.

[4] The tax base flexibilities would be as follows: 0.623, 1949-1950; 0.606, 1950-1951; 0.613, 1951-1952; 0.589, 1952-1953; 0.625, 1954-1955; 0.679, 1955-1956; and 0.630, 1956-1957. The average of the ratios for the 1949-1953 period is 0.608 which is identical to the average in Table II. For the 1954-1957 period, the average is 0.645 as contrasted with 0.644 in Table II.

[5] By computing the over-all built-in flexibility for the 1949-1953 and 1954-1957 periods, while excluding the T, TI, and AGI subject to alternative tax, one obtains magnitudes of 0.124 and 0.146 respectively.

Table I shows the tentative 1958 Internal Revenue Service totals for AGI and T as $262.25 and $34.24 billions and a personal estimate of $148.87 billion for TI. As compared with 1957, the 1958 figures show a slight increase in AGI but a drop in TI and T. If these preliminary statistics (which have been rather accurate in the past) are utilized to measure the 1957-1958 change in T associated with the change in AGI, one obtains a built-in flexibility of – 1.88.

It would be erroneous to assume that the negative sign obtained for 1957-1958 indicates that built-in flexibility between these two years was perverse. In fact, the opposite was the case. Although AGI increased slightly between 1957 and 1958, it will be recalled that incomes actually declined during the contraction in the latter part of 1957 and the early part of 1958. Income tax liabilities declined a bit in the face of the increased incomes between the two years because exemptions and deductions continued to rise. Thus, the income tax behaved in a counter-cyclical manner, as one would expect.

The cyclical variability of the income tax during a short recession would be clearer if the income tax data were available for periods of less than a year. There is no question, for example, that the annual rate of income tax liability dropped as incomes dropped between the third quarter of 1957 and the first quarter of 1958. The annual data cannot be used to measure the change in tax liabilities during such short periods because they average out incomes in different stages of the business cycle.

Pechman has stated that the built-in flexibility of the individual income tax is probably larger during contractions (such as 1957-58) than during expansions.[6] He based this conclusion on the hypothesis that population and exemptions would continue to rise while AGI was falling. This trend would intensify the decline in the tax base and thus increase the tax base flexibility. Therefore, assuming no change in the distribution of TI (and the marginal rate of taxation), the over-all built-in flexibility of the individual income tax would be relatively larger during recessions. The annual income tax data for 1957 and 1958 lend strong support to the Pechman proposition.

TABLE III

MARGINAL RATE OF TAXATION, 1949-1957

Change (in billions of dollars)

Years	Tax Liabilities *	Total Taxable Income	Change in T / Change in TI
1949–1950	$3.58	$12.65	.283
1950–1951	3.10	14.99	.207
1951–1952	1.33	8.13	.164
1952–1953	1.28	8.13	.157
1954–1955	2.94	12.66	.232
1955–1956	3.12	13.51	.231
1956–1957	1.66	7.81	.213

* Based on data in Table I.

II. *Distribution of Taxable Income*

Since the marginal rate of taxation depends upon the weighted average of the marginal rates for individual rate brackets, it follows that for any given tax rate structure its magnitude must necessarily depend upon the distribution of TI. Table IV presents the distribution of TI by rate brackets for the years 1949-1957.

The 1951-1953 redistribution towards the lower income classes was unusual and rather difficult to explain, but consistent with the low and volatile mar-

[6] Joseph A. Pechman, "Discussion," *American Economic Review*, May 1959, pp. 552-555.

ginal rate of taxation. A redistribution of TI towards the higher income brackets for 1954-1956 and the more stable percentage distribution help to explain the larger and rather constant marginal rate of taxation for the 1954-1955 and 1955-1956 periods. Dividend and interest income rose considerably during this period with large increases being received by individuals in the higher tax rate brackets as sharply contrasted with absolute decreases during the 1951-1953 period. For 1957, however, the TI distribution of the preceding three years is somewhat reversed. It is interesting to note that in each tax rate bracket, $26,000 and above, the relative as well as the absolute amount of TI dropped for the 1956-1957 period. One might rationalize that this trend may well be more pronounced for 1957-1958.

TABLE IV

PERCENTAGE DISTRIBUTION OF TAXABLE INCOME BY TAX RATE BRACKETS

Taxable Income Rate Bracket	1949	1950	1951	1952	1953	1954	1955	1956	1957
$ 0–$ 2,000	73.67	71.01	71.74	72.25	72.61	70.05	68.55	67.17	66.47
2,000– 4,000	10.96	11.13	12.30	13.54	14.65	14.62	15.48	16.66	17.57
4,000– 6,000	4.26	4.35	4.26	4.41	4.40	4.42	4.60	4.88	5.09
6,000– 8,000	2.58	2.72	2.34	2.44	2.27	2.43	2.50	2.56	2.56
8,000– 10,000	1.75	1.91	1.70	1.91	1.76	1.61	1.66	1.67	1.65
10,000– 20,000	3.36	4.11	3.73	2.55	2.10	3.50	3.67	3.71	3.58
20,000– 50,000	2.15	2.81	2.45	1.81	1.41	2.14	2.20	2.16	2.04
50,000– 100,000	.73	.97	.78	.57	.42	.58	.63	.57	.53
100,000– 200,000	.21	.46	.35	.29	.21	.26	.30	.26	.23
200,000 & over	.33	.53	.35	.23	.17	.29	.41	.36	.28
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

The question has been raised as to whether the distribution of TI can be explained logically by cyclical or secular causes. In this connection, I had suggested the need for testing the proposition (based on the apparent 1951-1953 secular trend) that TI per rate bracket varies inversely with aggregative changes in national income.[7] The 1949-1958 data do not indicate any necessary relationship between changes in income and the distribution of TI but would seem to suggest the importance of cyclical phenomena in explaining the fluctuations in the distribution of TI. It would be rather pertinent to examine and analyze the crucial factors affecting the sources of income to all taxpayers, but especially those cyclical but volatile sources of dividend and interest income which particularly affect the taxpayer in the higher tax rate brackets.

In any event, one should not understate the importance of changes in the distribution of TI (and the marginal rate of taxation) in making predictions as to the size of tax liabilities or the built-in flexibility of the individual income tax. The evidence over a period of ten years seems to suggest that there have been cyclical variations in these distributions which have caused substantial changes in the marginal rate of taxation. Therefore, it is quite conceivable that a governmental agency, for

[7] Cohen, *op. cit.*, pp. 540-541.

example, may forecast a tax yield rather incorrectly based on the past prevailing distribution of TI which may currently be changing.

III. *Conclusions*

1. The recent data indicate that the present individual income tax structure, as a built-in stabilizer, is rather limited in promoting economic stability. At present rates, the built-in flexibility of the individual income tax for the 1954-1957 period was roughly 0.145, as contrasted to 0.124 for 1949-1953.[8] This increase in built-in flexibility was caused by the change in the distribution of TI.

2. The negative built-in flexibility for 1957-1958, obtained from the early data, seems rather unusual. Actually, the data show that the income tax is highly sensitive to changes in income—even during short recessions. The negative sign indicates that the income tax behaved in a counter-cyclical manner even though AGI increased between 1957-1958. This was due to the combined increase in exemptions and deductions.[9] If quarterly data were available, they would presumably show a relatively sharp decline in income tax liabilities between the peak in the third quarter of 1957 and the trough in the first quarter of 1958.

3. The annual changes in the distribution of TI have been considerable during the 1949-1957 period, affecting the marginal rate of taxation and the over-all built-in flexibility. The volatility of this distribution is of some importance in explaining the behavior of tax yields and the built-in flexibility of the individual income tax.

[8] If total AGI is used as the base, built-in flexibility for the 1949-1953 and 1954-1957 periods is 0.129 and 0.146 respectively. For the derivation of total AGI from Personal Income, see Joseph A. Pechman, "What Would a Comprehensive Individual Tax Yield?," *Essays in Federal Taxation*—papers reprinted from the Tax Revision Compendium submitted to the House Ways and Means Committee (CED, December 1959), p. 19.

[9] During the 1954-1957 period, the average number of exemptions rose each year from 1.61 in 1954 to 1.67 in 1957. The amount of deductions as a per cent of AGI increased constantly from 13.1 per cent to 13.8 per cent. It would seem logical that this trend continued through 1958.

INVESTMENT IN UNITED STATES GOVERNMENT SECURITIES BY STATE GOVERNMENTS

JOSEPH L. BOWER *

IN 1957 an article by Colin D. Campbell in the March *National Tax Journal* drew attention to the increasing size and significance of state and local government holdings of U. S. Government securities. The data for that study described investment holdings in fiscal year 1954. Campbell's conclusions were that " State and local government purchases of federal securities have resulted both from their expanding welfare and construction activities and from the advantage being taken of earning interest on temporary idle funds. Their purchases have helped to bolster the market for U.S. government securities." The purpose of the present study is twofold: first, to bring Mr. Campbell's data up to date and thereby check the accuracy of his general results; second, to expand the inquiry into the behavior pattern of state government portfolios. Since 1957 the importance of the subject has increased both because the absolute size of state and local government portfolios has increased, and because the practice of investing idle funds has become more widespread. In December, 1945, state and local governments held $6.5 billion in federal securities. In 1954 the figure was $14.4 billion, in 1956—$16.1, in 1957—$17.0, and in 1958—$17.3.

The study is divided into two parts. Part I presents an analysis of the investment portfolios of 13 to 15 state governments [1] for the fiscal years 1956, 1957, and 1958. Ideally the date should describe all 48 states, but the unavailability of any detailed federal statistics in the field, limited resources and the incompleteness and/or unavailability of state documents combined to make a complete survey impossible. As in the Campbell study the sample states account for a large percentage of total state holdings, 54.3 per cent in 1958, and should therefore be adequate for general conclusions based upon a statistical survey.[2]

* The author is currently a student at the Harvard Graduate School of Business Administration. This paper is a revision of a memorandum written for the Harvard-M.I.T. Capital Markets Research Project under a grant from the Merrill Foundation for Advancement of Financial Knowledge. Special thanks go to Professor James Duesenberry for his guidance of the research and to Professor Lawrence Thompson for his helpful criticism and suggestions.

[1] As described below, the number of sample states varies from year to year. The 1958 sample consists of 15 states: Arkansas, Connecticut, Maine, Maryland, Massachusetts, Nevada, New Mexico, New York, North Carolina, North Dakota, Oregon, Rhode Island, South Dakota, Tennessee, and Vermont; that of 1957, 14 states, includes Delaware, and excludes Maine and Oregon; while the 1956 sample, 13 states, is the same as 1958 but includes Delaware and lacks Massachusetts, Nevada, and New Mexico.

The data were accumulated from annual financial statements of the individual states and in some cases of the individual state's funds.

[2] It would also have been desirable for comparative purposes to include in the sample of states for this study all 12 states which made up Campbell's sample. His classification of state funds was retained, but it was impossible to obtain data from two of the 12 states included in the Campbell study, New Jersey and West Virginia. Oregon's policy of publishing data only for even numbered biennial periods reduced the number to nine for the odd-numbered year, 1957. Data for New Mexico and Nevada were unavailable for 1956. Because of lack of sufficiently detailed

In Part II an effort has been made to measure, and in part explain, shifts within portfolio funds and between funds over the period 1954-1958, and to trace the growth within the various components of the states' portfolios. Because no attempt was made to reconstruct Campbell's original data, the study of portfolio movements within funds, with each state's funds taken as individual observations covers only the period 1956 to 1958.

I. THE SECURITY PORTFOLIOS

In June of 1958 all of the 15 states studied invested heavily in federal securities. Of a total of $3.3 billion invested in 1958, Table II shows that $1.9 billion, or nearly 59 per cent, was invested in U.S. governments. Twenty-one per cent of the total, or half of the funds remaining, $705 million, was accounted for by the investments of 13 states in the securities of state and local governments. $308 million or 9 per cent of the total was invested in corporate stocks and bonds, although only 11 of the states invested their funds in non-governmental securities. The remaining funds were distributed among mortgages — 6 per cent, certificate of deposit—2 per cent, non-guaranteed securities of federal agencies—1 per cent, and other securities (primarily Canadian and International Bank) — 2 per cent. Less than half the states invested in any one of these classes except for the category "other."

It should also be noted that the states were not at all consistent in the structure of their portfolios, except as they tended to concentrate most of their funds in federal securities and those of state and local governments. Thus, New York accounted for 94 per cent of the mortgages held by all states in the sample and was the only state to invest more than 10 per cent of its funds in this form. North Carolina held 92 per cent of all certificates of deposit, and these accounted for 10 per cent of its portfolio. South Dakota was the only other state to invest this large a fraction of its funds in this manner. Lastly, the diversity in size of the states' investments should be noted. New York State's portfolio, the largest, was about 140 times the size of that of the smallest, South Dakota.

The state holdings of U. S. government bonds are widely distributed and represent all types and maturities available. Table I shows that, in 1958, 81 per cent of federal securities held was in marketable issues, 14 per cent in convertible bonds, and 5 per cent in non-marketable issues (90 per cent of these or 4.5 per cent of the total are savings bonds). Of the 1958 holdings of federal marketable issues, the maturity of 36 per cent (29 per cent of the total holdings of federals) is less than one year, 8 per cent (or 6 per cent of the total) one to five years, and 51 per cent (or 41 per cent of the total) over five years. The remaining 6 per cent (or 5 per cent of the total) was in bonds of undetermined maturities. Among the various states, however, the structure of portfolios of federals varied greatly. Nearly all states were well represented in the long end, but several held insignificant percentages or none of their funds in short terms. All of these observations for 1958 are similar to those of Campbell for 1954, though of course, small changes can be noticed throughout.

data, Massachusetts was left out of the 1956 sample. Maine, like Oregon, publishes only biennial data.

TABLE I

SAMPLE STATES' HOLDINGS OF U. S. GOVERNMENT SECURITIES BY TYPE, MATURITY, AND CLASS OF FUND
FISCAL 1956, 1957, AND 1958
(Par value in millions of dollars)

1956 Type of Security Held	Type of Fund: Retirement Systems	Industrial Accident and Sickness	Highway, Construction and Capital Improvements	Debt Service Retirement	Treasury Balances	Permanent School	Others	Total*	Percentage of Total
	Number of States With Class of Funds: 11 States	6 States	10 States	10 States	10 States	9 States	10 States	13 States	
Marketable issues									
Treasury bills	$ 8.6	$ 1.0	$ 96.1	$ 5.9	$178.9	$ 3.1	$ .4	$ 293.9	19.08%
Certificates	....	.8	40.7	1.4	42.4	1.0	.3	86.5	5.61
Treasury notes	....	14.7	74.3	11.6	36.1	.4	.2	137.3	8.91
Within one year	....	7.6	37.3	4.5	18.7	....	.1	68.2	4.42
One to five years	....	7.1	37.0	7.1	17.4	.4	.1	69.2	4.49
Treasury bonds	354.1	71.6	7.2	177.5	8.0	25.7	3.4	647.5	42.03
Maturity unknown	3.6	7.5	2.3	4.4	....	22.6	.3	40.8	2.65
Within one year	....	....	....	....	....	....	....	....	0.00
One to five years	.7	3.1	1.5	17.4	3.0	.1	.1	25.9	1.68
Five to ten years	16.4	28.2	3.3	86.5	5.0	2.5	.7	142.6	9.25
Over ten years	333.3	32.8	.1	69.2	....	.5	2.3	438.3	28.45
Total marketable issues	362.7	88.1	218.2	196.4	265.3	30.3	4.3	1,165.2	75.63
Convertible bonds [Investment Series B]	298.5	6.4	.2	....	....	.9	1.2	307.2	19.95
Non-marketable issues									
Investment Series A	8.5	9.0	.1	....	....	....	.2	8.8	0.57
Savings bonds	23.8	9.0	1.8	13.8	.2	7.9	2.9	59.4	3.85
Total non-marketable issues	32.3	9.0	1.8	13.8	.2	7.9	3.1	68.2	4.42
Total* holdings	$693.4	$103.5	$220.3	$210.2	$265.5	$ 39.1	$ 8.6	$1,540.6	100.00%
Percentage of total	45.01%	6.72%	14.30%	13.64%	17.23%	2.54%	0.56%	100.00%	

* NOTE: Totals may not add because of rounding.

TABLE I (*Continued*)

1957 Type of Security Held	Type of Fund: Retirement Systems	Industrial Accident and Sickness	Highway, Construction and Capital Improvements	Debt Service Retirement	Treasury Balances	Permanent School	Others	Total *	Percentage of Total
	Number of States With Class of Funds								
	12 States	9 States	10 States	9 States	9 States	10 States	10 States	14 States	
Marketable issues									
Treasury bills	$ 14.0	$ .8	$189.3	$ 9.4	$211.3	$ 14.0	$ .5	$ 439.3	23.72%
Certificates	....	3.5	19.6	3.8	89.1	....	....	116.0	6.26
Treasury notes	0.7	6.4	21.1	5.9	45.8	1.4	.1	81.4	4.40
Within one year	0.7	6.0	21.1	5.7	42.7	1.4	.1	77.8	4.20
One to five years	....	.4	....	.2	3.1	....	....	3.7	.20
Treasury bonds	480.4	44.1	19.1	166.9	19.1	69.9	17.6	809.3	43.70
Maturity unknown	....	....	....	53.3	....	....	6.0	143.5	7.75
Within one year	5.6	.2	2.3	16.3	....	.5	....	24.9	1.35
One to five years	16.8	7.2	3.0	9.0	8.1	7.4	.1	51.6	2.78
Five to ten years	11.1	2.6	7.3	40.8	7.0	17.1	....	85.9	4.64
Over ten years	404.7	24.5	2.3	47.6	4.0	18.6	1.6	503.3	27.18
Total marketable issues	495.1	54.7	249.1	185.9	365.3	85.4	18.2	1,445.1	78.08
Convertible bonds [Investment Series B]	308.2	1.9	....	....	....	.4	.9	311.4	16.72
Non-marketable issues									
Investment Series A	8.1	....	....	....	....	....	....	8.1	0.44
Savings bonds	35.7	4.6	5.2	10.4	.1	30.2	2.0	88.2	4.76
Total non-marketable issues	43.8	4.6	5.2	10.4	.1	30.2	2.0	96.3	5.20
Total * holdings	847.7	61.1	254.1	196.4	365.4	$116.0	$ 11.2	$1,852.0	100.00%
Percentage of total	45.77%	3.30%	13.74%	10.60%	19.73%	6.26%	0.60%	100.00%	

* NOTE: Totals may not add because of rounding.

TABLE I (*Continued*)

1958 Type of Security Held	Type of Fund								Percentage of Total
	Retirement Systems	Industrial Accident and Sickness	Highway, Construction and Capital Improvements	Debt Service Retirement	Treasury Balances	Permanent School	Others	Total*	
	Number of States With Class of Funds								
	14 States	7 States	12 States	10 States	12 States	11 States	12 States	15 States	
Marketable issues									
Treasury bills	$ 3.1	$ .7	$102.5	$ 10.8	$167.0	$ 15.6	$ 1.5	$ 301.2	15.53%
Certificates	4.2	.3	67.1	.8	110.4	5.3	.8	189.0	9.74
Treasury notes	17.5	1.0	16.5	3.0	19.2	1.2	.4	58.7	3.03
Within one year	....	.2	16.5	1.4	19.2	....	....	37.2	1.92
One to five years	17.5	.8	....	1.6	....	1.2	.4	21.5	1.11
Treasury bonds	605.2	93.0	33.2	179.1	25.1	81.7	16.5	1,033.7	53.14
Maturity unknown	48.0	6.2	2.1	7.1	.4	23.4	6.1	93.3	4.81
Within one year	.6	1.0	6.0	18.6	7.0	3.0	.9	37.2	1.92
One to five years	11.9	25.6	.5	41.5	9.8	7.8	.9	98.0	5.05
Five to ten years	1.8	12.2	20.5	13.2	7.9	2.3	6.5	64.3	3.32
Over ten years	542.9	48.1	4.1	98.6	....	45.3	2.0	737.9	38.04
Total marketable issues	629.9	95.1	219.3	193.6	321.7	103.9	19.1	1,582.5	81.44
Convertible bonds [Investment Series B]	255.1	6.4	.2	.1	....	.9	1.3	264.0	13.61
Non-marketable issues									
Investment Series A	7.7	....	.1	....	....	....	....	7.8	0.40
Savings bonds	29.9	8.4	4.9	10.3	.6	29.1	2.0	85.1	4.44
Total non-marketable issues	37.6	8.4	4.9	10.3	.6	29.1	2.0	92.9	4.84
Total* holdings	$972.1	$109.8	$224.9	$204.0	$322.3	$133.9	$ 22.4	$1,939.5	100.00%
Percentage of total	47.55%	5.66%	11.60%	10.52%	16.62%	6.90%	1.16%	100.00%	

* NOTE: Totals may not add because of rounding.

If one looks at portfolio holdings of governments arranged by type of fund holding them (Table III), it is immediately obvious that all funds do not follow the same investment pattern. Thus, retirement systems had few bills and many Treasury bonds and convertibles, while treasury balance funds were almost entirely invested in bills, certificates and notes.

The Categories of Funds

Before describing the characteristics of the various categories of funds it should be noted that the seven classes are arbitrary fund titles chosen for the purpose of organizing varied data into a consistent whole. I have accepted the seven classes of Mr. Campbell without any modification in order to facilitate comparison and because my experience confirmed that they were well chosen. These classes are: Retirement Funds, Industrial Accident and Sickness Funds, Highway and Construction Funds, Debt Service Retirement Funds, Treasury Balances, Permanent School Funds, and Other Funds. It should be understood that not all states have funds falling into all of these categories, and that except for Retirement, no state used these exact titles for its funds.[3]

Retirement Systems

All of the 15 states in the 1958 sample except Maryland had some sort of retirement system (s), and had had such a system at least since 1954. These systems are generally for the benefit of state and/or local government employees and/or teachers in the state public school systems. Although a majority of the states have one or more funds which are larger than the retirement fund, the retirement systems, together, make up the largest fund category in the study. In 1958 their holdings of U.S. governments accounted for 48 per cent of the total or $922 million. Of the $922 million, $605 million or 65.6 per cent was in Treasury bonds, and 90 per cent of these were of maturities greater than ten years; $255 million or 27.7 per cent was in the convertible Investment Series B. Only 4.3 per cent of Retirement Systems' total holdings of federal securities was in maturities of less than 5 years. Of these short term securities, less than 1 per cent was in bills or certificates. Such a concentration in longs is, of course, natural and would be expected of retirement system portfolios.

Industrial Accident and Sickness

The second largest class of funds in Campbell's study, the Industrial Accident and Sickness funds, was sixth largest in 1958.[4] Only seven states in the sample had such funds. The category consists of industrial commission funds, disability investment funds, accident funds, disability insurance reserve funds and *state* workmen's compensation funds.[5] Of the $109 million invested in 1958 in federal securities, 85 per cent

3 There is some slight area in the assignment of funds to categories where arbitrary judgment on the part of the author was the only way of fitting a fund to a category. The occasions presenting this problem were few and tended to be insignificant. The primary case in point is the addition of "Capital Improvements" to Campbell's category Highway and Construction. The structure of funds which were considered capital improvement funds differed little from highway and construction funds and it seemed more appropriate to merge the two groups than to banish capital improvements funds to the nebulous company of "other."

4 In no other case did shifts in the composition of sample introduce changes in the relative size of funds and/or the portfolio structure of funds of any significance. The reader may assume that shift in sample introduced no change whatsoever except for the Industrial Accident and Sickness fund.

5 State as opposed to states' holdings in the federal system.

was in Treasury bonds (a little less than two-thirds of these of maturities greater than five years), 6 per cent in convertibles; and 7 per cent in non-marketable bonds. The remaining 2 per cent was invested in bills, certificates and notes.

Highway, Construction and Capital Improvements

The third largest investor class among the funds, holding 12 per cent of the federal securities, was the Highway, Construction and Capital Improvement funds. This category includes funds of highway and turnpike authorities, bridge authorities, housing and other public construction projects, and capital improvement or restoration funds (such as flood damage funds or mosquito control) which receive independent appropriations and are not part of the general operations of the state. Eleven states in the sample had such funds in 1958. The number varies throughout the years of the study, primarily because of the temporary nature of some of the funds —when highway construction is completed the fund may vanish—but also because Maine and Oregon both have funds in this class and both publish only biennial data. Of the $225 million invested by this class of funds, 46 per cent was in Treasury bills, 30 per cent in Treasury certificates of indebtedness, 7 per cent in Treasury notes, 15 per cent in Treasury bonds. Two-thirds of the bonds were in the five to ten year class and over half of the remainder in the "less than one year" class; virtually no funds were invested in convertibles and only 2 per cent in non-marketables. The growth of this class of funds, detailed below, and the temporary nature of a great part of the monies available for investment, make it at once one of the most conservative and most speculative.

TABLE II

INVESTMENT PORTFOLIOS OF SAMPLE STATE GOVERNMENTS, END OF FISCAL YEAR* 1954, 1956, 1957, 1958

	Percentage Distribution of Type of Securities Held			
	1954	1956	1957	1958
U. S. Government	63:19%	60.62%	60.61%	58.53%
State and local governments	14.47	19.37	20.26	21.28
Corporate stocks and bonds	6.95	5.40	7.26	9.29
Mortgages	5.26	7.73	6.14	5.93
Certificates of deposit	4.09	4.39	0.81	1.55
F.H.A. and other non-guaranteed federal securities	2.50	0.29	0.42	1.34
Other (primarily Canadian and International Bank)	3.54	2.20	4.50	2.08

* The end of the fiscal year is June 30, except for New York State—March 31.

Debt Service Retirement

Nine states had Debt Service Retirement funds. This class of funds is made up primarily of sinking funds. In 1958 they held $204 million or 11 per cent of the federal securities owned by the fifteen states. Of these federal securities 88 per cent represented Treasury bonds, 60 per

cent of which had maturities of more than five years. Of the remaining funds, 5 per cent was invested in bills, 5 per cent in non-marketables, next to none in convertibles (.03 per cent), 1.5 per cent in notes, and .5 per cent in certificates.

Debt Service Retirement funds tend to disappear gradually, of course, as issues are called, but the life of an individual fund may exceed 20 years or more.

Treasury Balances

This class of funds includes general funds, inactive funds, tax stabilization reserve funds, treasurers' investment of fund balances, and general revenue investment accounts. In 1958 twelve states had funds of this type invested in federal securities—17 per cent of the total or $322 million. Fifty-two per cent or $167 million was invested in

TABLE III

PERCENTAGE DISTRIBUTION OF SAMPLE STATES' HOLDINGS OF U. S. GOVERNMENT SECURITIES BY TYPE OF SECURITY AND CLASS OF FUND, FISCAL 1954–1958

Fund	Year	Type of Security							Fund as a Percentage of Total Funds
		Bills	Certificates	Notes	Treasury Bonds	Investment Series B	Non-marketable Securities	Total	
Retirement	1954	0.30%	0.00%	1.00%	45.70%	46.90%	6.00%	100.00%	36.99%
	1956	1.24	0.00	0.00	51.06	43.04	4.66	100.00	45.01
	1957	1.66	0.00	0.08	56.90	36.13	5.17	100.00	45.77
	1958	0.33	0.46	1.89	65.57	27.67	4.08	100.00	47.55
Industrial accident and sickness	1954	0.40	0.40	1.00	67.40	25.90	4.90	100.00	20.59
	1956	0.92	0.80	14.23	69.16	6.16	8.73	100.00	6.72
	1957	1.28	5.73	10.39	72.59	3.07	7.47	100.00	3.30
	1958	0.64	0.27	0.92	84.75	5.81	7.61	100.00	5.66
Highway, construction and capital improvements	1954	65.10	21.80	11.30	0.00	1.80	0.00	100.00	17.63
	1956	43.61	18.46	33.72	3.28	0.10	0.83	100.00	14.30
	1957	74.40	7.72	8.33	7.51	0.00	2.03	100.00	13.74
	1958	45.77	29.84	7.33	14.96	0.10	2.19	100.00	11.60
Debt service retirement	1954	20.10	6.20	5.90	61.70	0.00	6.10	100.00	10.49
	1956	2.82	0.64	5.53	84.46	0.00	6.55	100.00	13.64
	1957	4.78	1.91	3.02	84.98	0.00	5.31	100.00	10.60
	1958	5.38	0.37	1.47	87.69	0.03	5.06	100.00	10.52
Treasury balances	1954	30.90	30.90	28.70	7.90	1.30	0.20	100.00	9.98
	1956	67.36	15.96	13.59	3.01	0.00	0.08	100.00	17.23
	1957	57.83	24.38	12.54	5.23	0.00	0.03	100.00	19.73
	1958	51.80	34.27	5.94	7.80	0.00	0.19	100.00	16.62
Permanent school	1954	21.60	0.00	0.00	34.70	3.00	40.90	100.00	1.75
	1956	7.94	2.65	1.02	65.81	2.39	20.19	100.00	2.54
	1957	12.09	0.03	1.21	60.29	0.36	26.02	100.00	6.26
	1958	11.68	3.98	0.92	60.99	0.68	21.75	100.00	6.90
Other	1954	9.40	2.10	1.60	47.80	6.50	33.00	100.00	2.56
	1956	4.36	2.91	2.72	39.83	14.19	35.99	100.00	0.56
	1957	4.34	0.00	0.00	68.80	8.47	18.39	100.00	0.60
	1958	6.61	3.62	1.67	73.45	5.79	8.86	100.00	1.16
All types	1954	17.50	7.30	6.10	39.90	23.30	5.50	100.00	
	1956	19.08	5.61	8.91	42.03	19.95	4.42	100.00	
	1957	23.72	6.26	4.40	43.70	16.81	5.20	100.00	
	1958	15.53	9.74	3.03	53.14	13.61	4.84	100.00	

Treasury bills, 34 per cent or $110 million in Treasury certificates of indebtedness, 6 per cent in Treasury notes and the remaining 8 per cent in Treasury bonds. The funds available for such investments vary from year to year and within the year, being affected by tax dates, dates of major expenditures, and various revenue sources which fluctuate with activity and income within the state.

Permanent School Funds

Twelve states held investments of federal securities in this category, the fifth largest group of funds, amounting to 7 per cent of the total or $134 million. Permanent School funds consist of all funds devoted to educational purposes; endowment funds, investment of temporary school fund surpluses, and funds for the expansion and maintenance of physical plant are included. Sixty per cent of the federal securities held was Treasury bonds, a little more than half of them being over ten years in maturity, 12 per cent was bills, 4 per cent certificates, 1 per cent notes, and 21 per cent non-marketable—virtually all of these last being savings bonds.

Other

The "Other" category is primarily made up of various trust funds. Only 1 per cent of the total federal securities invested was held by this category.

II. SHIFTS IN THE FUNDS

A comparison of the sections of Table III shows that while the above description of the structure of the various funds in 1958 roughly describes the situation in 1954, 1956, and 1957, there have been changes in the structure of the funds, in some cases large changes.

There are two types of changes: first, the relative size of the funds has shifted since 1954, and second, the portfolio structure of the funds has changed. Column 8 of Table III describes the relative shifts in the size of the funds. The major trends are, speaking relatively, the growth of Retirement funds from 1954 to 1958, the decline in size of the Industrial and Sickness funds,[6] the decline of Highway funds, and the increased size of Treasury Balances. Permanent School funds have increased their relative position four times over but still account for but a small percentage of total holdings.

As shown in Table IV, the structure of the entire portfolio seems to be subject to two kinds of shifts. Some shifts in the portfolio seem to be responses to year-to-year shifts in the interest rate. Thus 19.1 per cent of the federal securities was held in bills in 1956. The figure was 23.7 per cent in 1957 and 15.5 per cent in 1958. On the other hand, a steady trend is noticeable into marketable issues, into Treasury bonds in particular, and out of convertible bonds. Of these shifts, the year to year movements are by far the most important both to the Treasury Department and the bond traders, because both are interested in the composition of the market for government securities.

In analyzing portfolio changes, it was assumed for the purposes of this study that three factors were at work. A shift in portfolio structure must either be the result of changes in the relationship among the various funds, changes in the portfolio structure of the individual funds, changes in the relationship among the states themselves, or some

[6] As explained above, this apparent trend is primarily the result of a shift in the composition of the sample.

combination of the three factors. Further, it was thought that the change in the structure of the individual funds with the relationship between funds held constant ought to represent that factor in portfolio structure which is sensitive to the interest rate.[7] Regression analysis of the sample portfolio over four years suggested that changes in the spread in interest rates among the various maturities available, rather than the absolute level of the interest rate, determined shifts in portfolio structure. Thus with interest rates falling across the entire maturity structure a portfolio shift would be seen into that maturity whose yield fell least. No statistically consistent relationship could be discovered, however, because of the limited number of years for which observations were available.

The data for 1956, 1957, and 1958 were then tabulated by individual funds of individual states, and as a further refinement the table was summarized verbally by state. It then became apparent that what showed up in aggregate figures as inconsistent data was most often attributable to offsetting trend and counter-trend behavior of the individual states.

From this summary all insignificant changes and/or movements were eliminated.[8] Two major trends then became apparent. From June 1956 to June 1957most of the significant shifts were in the short direction, into bills or certificates. From June 1957 to June 1958,

TABLE IV

PERCENTAGE DISTRIBUTION OF U. S. GOVERNMENT SECURITIES OWNED BY SAMPLE STATES, FISCAL 1954–1958

	1954	1956	1957	1958
Marketable issues				
Treasury bills	17.5	19.08	23.72	15.53
Certificates	7.7	5.61	6.26	9.74
Treasury notes	6.1	8.91	4.40	3.03
Within one year	3.9	4.42		1.92
One to five years	2.2	4.49		1.11
Treasury bonds	39.9	42.03	43.70	53.14
Maturity unknown	0.0	2.65	7.75	4.81
Within one year	.8	0.00	1.35	1.92
One to five years	.8	1.68	2.78	5.05
Five to ten years	6.7	9.25	4.64	3.32
Over ten years	31.5	28.45	27.18	38.04
Total marketable issues	71.2	75.63	78.08	81.44
Convertible bonds (Series B)	23.3	19.95	16.72	13.61
Non-marketable issues				
Investment Series A	.5	0.57	0.44	0.40
Savings notes	.3	0.00	0.00	0.00
Savings bonds	4.6	3.85	4.76	4.44
Total non-marketable issues	5.5	4.42	5.20	4.84

[7] It was hypothesized that both the relationship among funds and that among states were primarily determined by political and other institutional factors. Therefore, for purpose of economic analysis, these relationships were held constant.

[8] Insignificant changes were judged to be changes of less than 4 per cent.

almost all of the significant changes were shifts long, into Treasury bonds of maturity greater than five years. The Appendix presents a summary of these two trends. The 1956-1957 trend saw ten state funds following the rise in the bill rate into shorts, and two state funds moving in the opposite direction. In 1957-58, the drop in the bill rate of 2.46 percentage points contrasted with a decline of only 0.32 points in the bond yield caused, or seemed to have caused, seven state funds to switch from shorts to longs. An additional four funds which held combinations of long and non-marketable governments invested new funds exclusively in longs. Only four funds moved in the opposite direction—into shorts. A chi square test, adjusting for only one degree of freedom, shows the relationship to be significant at the 5 per cent level.

The significance of the two trends in absolute terms is shown in Table V. Using the 1956 and 1957 portfolio structure and actual portfolio totals for 1957 and 1958, projections were made to determine what the dollar breakdown by maturity would have been for each of these years if the relative composition of funds had remained unchanged. The actual figures were then subtracted from these projections. Thus a positive figure in Table V shows that the projection was too high, a negative figure, that it was too low.

From 1956 to 1957 the shift short is seen in the fact that the projection of bills was $86 million too low, that of certificates $12 million too low, that of long notes $79 million too high and, that of bonds over five years $109 million too high. From 1957 to 1958, the shift long showed up in the projection of bills $159 million too high (offset only somewhat by a projection of certificates $68 million too low), the projections of notes less than one year $44 million too high, (somewhat offset by a projection for long notes $17 million too low), and a projection of Treasury bonds $186 million too low. In particular, bonds over ten years were projected $210 million too low. Thus the Appendix and Table V together illustrate the fact that portfolio structure is sensitive to some extent to changes in the interest rate and that this sensitivity leads to statistically significant changes which are of large absolute magnitude.

Looking at the individual changes themselves, some speculation is apparent in the 1957-1958 shifts into longs of several State Highway funds. It is very possible that rising bond prices, as opposed to an increase in the spread between shorts and longs, accounted for these moves. The resources of a highway fund must necessarily be liquid, and when a large portion of such funds is invested in a long term bond, the investment must be considered speculative as the funds managers could not be sure of holding the bond to maturity if prices fell.

Two of the exceptions to the 1957-1958 trend can be satisfactorily explained as hedging movements. The Debt Service Retirement funds of New York and Rhode Island moved into intermediates rather than shorts while decreasing longs. The other two observations are harder to explain. In the 1956-1957 movement into shorts, hedging in intermediates also seems to explain one of the counter trend observations. On the other hand, the remaining item would appear to be a bad guess on the part of the fund manager.

Before leaving Table V, the over-all trend into Treasury bonds from 1954 to

TABLE V

SAMPLE STATES' PORTFOLIO STRUCTURE 1954, 1956, AND 1957 PROJECTED TO 1956, 1957, AND 1958 AND COMPARED WITH ACTUAL FIGURES

(In millions of dollars)

Type of Security	Portfolio Structure, Base Year 1954	Difference Between Projected and Actual			Portfolio Structure, Base Year 1956	Difference Between Projected and Actual	Portfolio Structure, Base Year 1957	Difference Between Projected and Actual
		1956	1957	1958		1957		1958
Marketable issues								
Treasury bills	17.5%	$-24.3	$-115.7	$+ 38.3	23.72%	$+158.9	19.08%	$-85.9
Certificates	7.7	+32.1	+ 26.6	- 39.7	6.26	- 67.6	5.61	-12.1
Treasury notes by maturity	6.1	-43.4	+ 31.6	+ 59.6	4.40	+ 26.6	8.91	+83.6
Within one year	3.9	- 8.1	- 5.5	+ 38.5	4.20	+ 44.3	4.42	+ 4.1
One to five years	2.2	-35.3	+ 37.1	+ 21.1	0.20	- 17.7	4.49	+79.5
Treasury bonds by maturity	39.9	-32.8	- 70.4	-259.8	43.70	-186.1	42.03	-30.9
Within one year	0.8	+12.3	- 10.1	- 21.7	1.35	- 11.0	0.00	-24.9
One to five years	0.8	-13.6	- 36.8	- 82.5	2.78	- 44.1	1.68	-20.5
Five to ten years	6.7	-39.4	+ 38.2	- 65.6	4.64	25.7	9.25	+85.4
Over ten years	31.5	+47.0	+ 80.0	-126.9	27.18	-210.7	28.45	+23.6
(Maturity unknown)	...	(-40.7)	(-143.5)	(- 93.3)	(7.75)	(57.0)	(2.65)	(-94.4)
Total marketable issues	71.2	-68.3	-126.5	-201.6	78.08	- 69.2	75.63	-44.4
Convertible bonds [Investment Series B]	23.3	+51.7	+120.1	+187.9	16.81	+ 62.0	19.95	+68.1
Non-marketable issues								
Investment Series A	0.5	- 1.1	+ 1.2	+ 1.9	0.44	+ .7	0.57	+ 2.5
Treasury savings notes	0.3	+ 4.6	+ 5.6	+ 5.8	0.00	....	0.00	...
Savings bonds	4.6	+11.5	- 3.0	+ 4.1	4.76	7.2	3.85	-16.9
Total non-marketable issues	5.4	+15.0	+ 3.7	11.8	5.20	7.9	4.42	-14.4

1958 should be noted as well as the steady movement out of convertibles. The projection of Treasury bonds was $33 million too low in 1956, $70 million too low in 1957 and $260 million too low in 1958, while at the same time the projection of convertibles increased steadily from $52 million too high in 1956 to $188 million too high in 1958. The former, in part, reflects the growth of retirement funds with their inherent tendency to keep a major portion of their funds in the long end of the maturity structure.

Finally, there have been a few noticeable trends in portfolio structure outside of the sphere of federal securities. While the shifts as shown in Table II are small, and while some part of the shifts, particularly from 1954 to 1956, is the result of a change in the sample, there is a noticeable trend out of U.S. governments and into the securities of state and local governments and private corporations. This trend is only evident in a relative sense, as the absolute size of holding of federal securities has increased. The trend can be partially explained by the fact that a large fraction of state and local government securities and corporate debt and equity is held by Retirement funds. The retirement systems not only have the longest time horizons of any of the funds, but also have the greatest interest in yield *qua* yield and in maintaining the real value of their capital over time. Retirement funds also have the greatest likelihood of being independently managed.

Except perhaps for a drift, 1956 to 1958, into non-guaranteed federal securities and a slow drift out of mortgages, there is no other readily discernible trend in Table II.

Conclusion

After taking account of the composition of the total portfolio in terms of funds, there is some indication of sensitivity to yield shifts. The two movements, short from 1956 to 1957, and long 1957 to 1958, are statistically significant at a 5 per cent confidence level and are of approximately $150 million in absolute magnitude.

Finally, allowing for the shifts in the composition of the sample, there is a noticeable trend out of U.S. governments into state and local government securities.

APPENDIX

(Figures are Percentage Points of Change in Asset–Total U.S. Securities Portfolio Ratios)

PART I. 1957–58 TREND INTO LONGS

	Maturities			
	Over 5 Years	1 to 5 Years	Under 1 Year	Non-Marketable
Follows Trend				
1. Arkansas Retirement	+ 8	− 3	− 5	
2. Connecticut Retirement	+ 5		− 5	
3. Connecticut Debt Service Retirement	+ 6	− 3	− 3	
4. New Mexico Highway	+15			−15
5. New Mexico Retirement	+17		− 1	−16
6. New York Retirement	+ 5	− 2	− 2	− 1
7. North Carolina Retirement	+25			−25
8. North Dakota Highway	+ 6		− 4	− 2
9. Tennessee Retirement	+38			−38
10. Vermont Retirement	+ 9		− 9	
11. Vermont Debt Service Retirement	+10		−10	
Exception to Trend				
1. Maryland Debt Service Retirement	− 4		+ 4	
2. New York Debt Service Retirement	−28	+28		
3. Rhode Island Debt Service Retirement	− 5	+ 5		
4. Rhode Island Retirement	−28			+28

PART II. 1956–57 TREND INTO SHORTS

Follows Trend				
1. Connecticut Highway	− 2	−25	+27	
2. Connecticut Debt Service Retirement	− 5		+ 6	
3. Maryland Debt Service Retirement	− 7	− 1	+ 8	
4. New York Retirement	− 6		+ 6	
5. New York Highway		− 6	+ 6	
6. New York Debt Service Retirement	− 5	− 9	+17	− 3
7. North Carolina Treasury Balances	− 7	−58	+65	
8. North Dakota Highway	− 6		+ 6	
9. Tennessee Retirement	−37			+37
10. Vermont Retirement	− 5		+67	−62
Exception to Trend				
1. Arkansas Retirement	−15	+15		
2. Arkansas Highway	+75		−75	

INCOME TAX EXEMPTION AND ECONOMIC DEVELOPMENT

KENNETH M. KAUFFMAN *

AFTER developing an elaborate set of institutional arrangements to implement the collection of revenues, it would seem paradoxical for a state to establish similar procedures to nullify the initial effort. Yet this is precisely what is being done by a large number of underdeveloped countries today. It is safe to say that at least thirty countries and territories have promulgated legislation designed to facilitate the granting of tax exemptions for what most frequently are called "pioneer" or "new and necessary industries."[1]

Considering the extensive nature of "tax holiday" laws, it is remarkable that so little attention has been devoted to analysis of their operation and significance. While it is true that several case studies concerned with particular countries have appeared, there has been little effort in the direction of generalization based upon the laws and experience of a number of countries.[2] Naturally generalization must wait upon the completion of case studies, but it is probably not too early for an initial foray.

The present study, which attempts a general analysis of income tax exemption as a technique designed to promote economic development in underdeveloped countries, is divided into four parts. The place of tax exemption in the strategy of economic development is considered in Part I. Part II surveys exemption from the point of view of the prospective investor, and indicates that while the prima facie value of tax relief can be great, closer inspection re-

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Editor's note: Parts III and IV of this article will be published in the next issue of the *Journal.*

[1] The International Chamber of Commerce in its pamphlet *Taxation and the Developing Nations* (Paris, 1959) presents a convenient summary of the various reliefs from direct taxation offered in underdeveloped areas.

[2] Two significant case studies of exemption programs have appeared, Milton C. Taylor, *Industrial Tax-Exemption in Puerto Rico* (Madison: University of Wisconsin Press, 1957), and Stanford G. Ross and John B. Christensen, *Tax Incentives for Industry in Mexico* (Cambridge, Mass.: International Program in Taxation, Law School of Harvard University, 1959). Apart from these larger published works there exist a number of articles dealing with specific countries, e.g., Alan H. Smith, "Tax Relief for New Industries in Ghana," *National Tax Journal,* XI (Dec., 1958), pp. 362-70; Britton Harris, "Note on Tax Exemption and Development," *National Tax Journal,* VIII (Dec., 1955), pp. 383-99, essentially a criticism of Taylor's book; M. J. Kust, "Income Tax Concessions for Private Investment in India," *Taxes* (Feb., 1958), pp. 114-23. Some discussion of exemptions may be found also in various United Nations publications, e.g., United Nations Economic and Social Council, *Financing of Economic Development: International Tax Problems,* Document E/2865 (May, 1956), and J. Harvey Perry, *Taxation and Economic Development in Ghana* (New York: UN:TAA, 1958), pp. 29-50. The paper by Joseph Froomkin, "Some Problems of Tax Policy in Latin America," *National Tax Journal,* X (Dec., 1957), pp. 370-79, while covering a wider range of topics, is valuable as a comparative study which gives some attention to exemptions.

veals a number of factors which becloud the value of the stimulus. A brief survey of the effects of exemption programs in Puerto Rico, Mexico and the Philippines constitutes Part III, and the final part is devoted to some further problems and conclusions which generally question the use of income tax exemption as an incentive device for the underdeveloped country.

PART I: TAX EXEMPTION AND THE STRATEGY OF ECONOMIC DEVELOPMENT

A. *The Setting of the Investigation*

The underdeveloped country provides the background against which tax holiday laws will be discussed. What is meant by "underdeveloped country" varies from place to place and according to the purposes at hand, but a complex of characteristics exists in many areas which would generally qualify the countries concerned for the title. Typically these characteristics include economic factors such as low income per capita, low investment as a proportion of gross national product, predominance of agricultural employment, and a highly skewed distribution of income. An important sub-type is the "export economy" with its heavy dependence on foreign trade and specialization on the exportation of a few primary products. Whether an "export economy" or not, the underdeveloped country often suffers from balance of payments deficits.

Public finance in the underdeveloped country relies heavily upon indirect taxation for revenue, but income taxation has been growing in significance. Revenues as a whole are a smaller proportion of the national income than in developed countries, and the proportion has not risen rapidly as in the developed countries. Expenditures, nevertheless, tend to grow, and consequently there are often inflationary deficits.

B. *The Objectives of Government Policy*

The existence of tax exemption laws in underdeveloped countries reflects the high political priority given to schemes which are thought to promote economic development. Policy makers in these countries, however, like their counterparts in the developed country, must consider a variety of economic objectives. Not only growth, but also full employment, stable prices, optimum allocation of resources, a satisfactory distribution of income and a proper balance of payments may be desired. Noneconomic goals and values (stable domestic political relations, satisfactory international relations, promotion and preservation of culture) must be considered. These goals of high policy may be complementary, competitive, or neutral with respect to one another. Stable domestic political relations would generally be considered complementary with economic development,[3] for example, while income equalization measures are sometimes viewed as incompatible with maximum capital formation.[4]

[3] John Stuart Mill, a man who put great store in the role of a stable government in establishing the secure environment which he thought vital for economic growth, nevertheless pointed out that there might be some optimum degree of lawlessness from an economic point of view. The prosperity of the League Towns, Venice and so on, in a lawless age, he says, shows that a certain degree of insecurity in some combinations of circumstances, has good as well as bad economic effects. Cf. *Principles of Political Economy*, ed. Ashley (London: Longmans, Green & Co., 1909), p. 881.

[4] On the other hand a more equal distribution of income will widen markets, which is most important

Tracing out the interrelations among various policy objectives is a difficult task, and the results will always be open to criticism. It may be hypothesized, however, that although the goal of economic growth through higher investment stands near the top of the list in most underdeveloped countries, this goal will be sacrificed if the measures required to attain it interfere markedly with the fulfillment of other cherished aims. Consequently, one important question is the extent to which income tax exemptions are compatible or incompatible with the attainment of certain ends. To put the question in another way, it may be asked to what extent does the general stimulus to investment provided by tax exemption become circumscribed because of a desire to create a certain kind of economy.

The kind of economy desired by policy makers is embodied in a general strategy of economic development. To understand the role of tax exemption in shaping development it is thus necessary to place it in the context of this general strategy. The strategy itself may be contained in the provisions of a well constructed Plan, or it may simply be embodied in a variety of laws, statements and institutions which are not necessarily consistent or complete. For purposes of this study, however, the strategy need be known in broad outline only, and it will be assumed that this outline is inherent in a Plan or may be derived from the provisions of the exemption laws themselves along with information concerning the actual operation of the laws. In only a few instances will it be necessary to go beyond these sources. The key questions of strategy for present purposes concern the role of planning, the nature of the public sector commitment, the place of foreign capital, the problem of the balance of payments, the sectoral emphasis, and the role of internal and external economies of production.

C. *Tax Exemption in the Context of the General Strategy of Economic Development*

Planning: Generally in countries with Plan documents only the public sector program is spelled out in detail. While a large portion of the "planned" investment may be allocated to the private sector, particular projects cannot be examined in detail, for, clearly they will be undertaken only if the private investor thinks they are worthwhile and finds the necessary resources. Perhaps because the Plan is difficult to apply directly to the private sector, it is often the case that the role of the public sector is heavily emphasized in the underdeveloped country using formal planning techniques. Given the general shortages of critical resources, this means that the government will view the private sector essentially as a supplier of the means for development projects to be undertaken by the public sector. Ordinary revenues never suffice for the ambitious aims of the Plan; [5] it becomes necessary to garner savings in extraordinary ways, to borrow abroad, deficit finance and so forth.

for development while the loss of growth promoting expenditures resulting from redistribution may often be overestimated because of the high marginal propensity of the rich to consume luxuries and export capital. The important issue for development policy may not be income equalization, but income redistribution from those who engage in nongrowth stimulating spending to those whose spending promotes development.

[5] India's second five year plan, for example, calls for only one sixth of the public program to be financed from current account surplus. Cf. Government of India, *Second Five Year Plan* (1956), p. 77.

Because of the focus on the government sector, tax exemption schemes are of limited significance in the context of an over-all Plan. In India, for example, the role of tax exemption under planning is made clear. Of a total planned investment aggregating Rs. 6200 crores, Rs. 2400 crores is allocated to the private sector.[6] The Plan maintains that the State can aid the private sector in achieving the investment target partly by "cutting out undesirable investment—through capital issues control, control over exports and imports and licensing of industries; partly through tax adjustments and concessions and in part by way of selective financial assistance through the various corporations which have been set up for the purpose."[7] In this context it seems clear that the tax concession is merely a minor incentive which is used along with a wide range of control measures designed to allocate investment according to government wishes.

The Indian Plan concluded that the private sector would be able to take care of its financial needs because of the existence of a growing capital market and the easy money created by government deficit financing.[8] Experience under the Second Plan has borne out this forecast, for the private sector investment has gone far beyond expectations. Importation of capital goods on private account during the first year of the Plan, for example, absorbed the total amount of foreign exchange projected for this purpose for the whole five year period.[9] This heavy private investment and the apparent inability of controls to cope with the situation meant that the public sector was unable to achieve its goals during the first two years of the Plan. Instead of the allotted portion of well over 50 per cent of total investment, the government accounted for only about 40 per cent.[10] Thus, although no conflict between private and public investment was expected when the Plan was written,[11] the Plan in practice demonstrated that tax yields and other flows to the public sector were insufficient.[12]

Nature of the Government Commitment: The reason for the conflict between tax exemption and Plan objectives lies in the rigidity of the public sector commitments which are definitely specified in the document. In these circumstances the government cannot afford to fail, and an uncontrolled private sector may well lead to such a result. Tax exemption must in this situation be used in a limited way or converted into a control device.

That a choice must be made between formal planning which involves heavy government participation and tax exemption as a basic instrument in promoting the ends of development is perhaps best illustrated by the example of Puerto Rico. With the establishment of a Planning Board, Government Development

[6] *Ibid.*, p. 92. One crore equals ten million; one rupee equals twenty-one U. S. cents.

[7] *Ibid.*, p. 93.

[8] *Ibid.*

[9] Edward S. Mason, *Economic Planning in Underdeveloped Areas* (New York: Fordham University Press, 1958), p. 77.

[10] *Ibid.*

[11] *Second Five Year Plan, loc. cit.*

[12] Since tax incentives operated in the direction of allocating too much to the private sector relative to the planned proportion, it might be expected that enthusiasm for them among the Planners would be dampened. One might expect less incentive and more direct control to be forthcoming.

Bank, and the Puerto Rico Industrial Development Company (1942), the government embarked upon a program which emphasized the public sector role in initiating and operating new enterprises. Although some success was attained in these ventures, it became evident that much more activity would be required if Puerto Rico was to grow in a substantial way. At this point a decision was taken to de-emphasize the role of the direct government commitment and to use public funds not as a principal component but as a catalyst in the initiation of new enterprise. Tax incentives were then decided upon as the chief instrument for attracting private capital and technology.[13]

The fact that tax exemption is essentially an instrument designed to promote private investment, however, does not mean that the government using it necessarily plays or wishes to play a minor role. What it does mean is that the government role must be flexible and adjust to the response of private investors. Even in Puerto Rico where private investment is genuinely stressed, total government participation in the capital of manufacturing establishments promoted by Fomento amounted to 15 per cent in 1957.[14] Most of these enterprises, it may be assumed, enjoy tax exempt status.[15]

Two other examples may be cited to illustrate how the exemption technique may be allied with government participation. The first is provided by the Ceylon exemption law which accords maximum benefits to enterprises in which the government has an interest.[16] The second is found in Mexico where 30 per cent of the benefits of exemptions between 1949 and 1957 accrued to government owned enterprises.[17] In this case the tax stimulus may have served to help these decentralized operations become self-sufficient through circumvention of the budgetary appropriation, but it clearly had nothing to do with stimulating the private investor. Nevertheless in Mexico, although the government contribution to the development effort has been large,[18] the public commitment is not rigidly specified. There is consequently less probability of conflict between public and private ventures.

The Place of Foreign Capital: It is generally conceded that substantial im-

[13] Cf. Teodoro Moscoso, Address before the International Industrial Development Conference, San Francisco, Oct. 17, 1957, cited by William H. Stead, *Fomento—The Economic Development of Puerto Rico* (Washington: National Planning Association, 1958), p. 113.

[14] This figure was computed from information supplied by the Office of Economic Research, Economic Development Administration, as cited by Stead, *op. cit.*, p. 47.

[15] In its first incentive plan which operated between 1948 and the end of 1953 government participation amounted to nearly 25 per cent. Of the 273 factories in operation under the auspices of Fomento at the end of 1953, 90 per cent were tax exempt. Cf. Mariano H. Ramirez, *Introduction to Industrial Incentives Act of 1954* (San Juan: Commonwealth of Puerto Rico, n.d.), p. 3.

[16] In Ceylon while other beneficiaries are restricted to exemption of income up to a 5 per cent return on investment no such limit is applied to enterprises which the government has helped to organize and to which it has contributed capital. Cf. *Income Tax (amendment) Act no. 3 of 1956, Section 72*, as published in *Taxes in the Commonwealth*, annual supplement 1956.

[17] This information was obtained from an unofficial study carried out by the research department of the Sociedad Mexicana de Crédito Industrial, S.A., and supplied to the author by Mr. Emilio Sacristán of Harvard University.

[18] Between 1939 and 1950, a period of rapid economic growth, the Mexican government contributed 40 per cent of total investment expenditures. Cf. Combined Mexican Working Party, *The Economic Development of Mexico* (Baltimore: The Johns Hopkins Press, 1953), p. 110.

ports of foreign capital will be necessary to ensure rapid economic growth in most underdeveloped countries. Those nations possessing economic Plans explicitly recognize the need for outside financing. Foreign grants and loans account for 51 per cent of public sector finance in the Pakistan Plan,[19] and 17 per cent in the Indian Second Plan.[20] Foreign investment in the private sector however is not expected to be of such great magnitude in either India or Pakistan. The latter's Plan projects a foreign component of only 11 per cent of planned private investment, while the former's Plan does not anticipate that the foreign component will rise beyond 2-4 per cent of projected private investment.

The question of interest is whether there is evidence suggesting that tax exemption laws represent a special effort to attract foreign private capital. Provisions of some of the laws are revealing in this connection. In Guatemala exemptions for existing manufacturing industries are restricted to firms having local capital participation. Salvador requires that 50 per cent of the capital of exempt companies come from local sources, while Iraq demands 55 per cent local capital. The original version of the Philippines tax-exemption law, which was not enacted, limited the privilege to entities at least 61 per cent of whose capital was owned by citizens. Such provisions indicate a definite reticence on the part of the governments concerned in encouraging the foreign investor. Desire to encourage the local rather than the foreign capitalist is also evidenced by provisions restricting the role of foreign personnel. The Lebanese exemption law demands that a minimum percentage be paid to local employees in salaries and wages, while Iraq law provides that no more than 10 per cent of workers be foreign.

From these provisions it should not be concluded that all underdeveloped countries are hostile to foreign private capital. Some exemption statutes, in fact, are clearly designed to attract the foreigner by discriminating in his favor. Colombia, for example, exempts from patrimony tax only new foreign investment of certain types, while Paraguay singles out foreign capital for income tax benefits which are not available to local firms.

What might be said in fairness is that most underdeveloped countries are ambivalent with respect to the role that should be played by private foreign capital in their development strategy. Benefits in the form of new capital, technology, and managerial talent are desired, but there is an old fear of foreign domination which leads to hesitation when laws are passed or particular cases are considered.

The case of Pakistan reveals the nature of the ambivalence towards private foreign investment. Although the tax law provides incentives to foreigners and this is coupled with an investment guarantee agreement with the United States, an official U. S. publication notes that:

> negotiations to obtain Government approval to invest in Pakistan have usually been long extended and costly. There is strong sentiment for Pakistani participation in new enterprises—in certain cases shares must be offered to Pakistanis—but few private investors exist. It is necessary to employ a large percentage of Paki-

[19] Government of Pakistan, National Planning Board, *The First Five Year Plan 1955-60* (Karachi: Manager of Publications, 1958), p. 136.

[20] *Indian Plan*, p. 78.

stanis in any business involving trade, a requirement that could be applied to industrial management.[21]

Sectoral Emphasis in Development Strategy: Although it is possible to attain a high level of income by concentration upon the development of efficient agriculture, as is evident from the experience of New Zealand and Denmark, there is little question that most underdeveloped countries are especially interested in promoting the manufacturing sector above all others. In countries with Plans a sort of balance is struck, but there is a tendency to concentrate resources in manufacturing, as witness the Second Indian Plan.

Where no Plan exists and the use of tax exemption is emphasized, the desire for manufacturing may be even keener. Income tax exemption, of course, has little meaning for agriculture in the underdeveloped country since quite generally income taxation has little impact upon that sector. Land taxes, the mainstay of agricultural taxation, have also become much less important in many countries because of rising price levels.[22] It may therefore be difficult to use incentive taxation in the agricultural sector without significant over-all reform. That incentive taxation is not directed at agriculture is clear in any case from the titles of the exemption acts, " Industrial Incentive Act," " Law for the Promotion of New or Essential Industries."

" Industry " is a term with wide coverage, but there is little doubt that manufacturing industry is the kind generally desired. Where specific lists of essential or necessary industries are found as in Mexico, Puerto Rico and Jordan, these consist almost entirely of operations requiring plant and machinery used to transform significantly raw materials and other inputs. While some operations such as the hand weaving of rugs, slaughtering and hydroponics operations in Puerto Rico, the performance of repair services on ships, locomotives or railroad cars or aircraft in Mexico, and hotel keeping in a number of West Indian jurisdictions, are included among exemptible industries, these constitute relatively minor exceptions to the rule.

Balanced Growth and the Balance of Payments: The stress on manufacturing might seem to be in conflict with statements of a desire for " balanced growth," such as are found for example in the Philippines incentive law, which requires that the exempt necessary industry should " contribute to the attainment of a stable and balanced national economy." [23] It might be thought that a stable and balanced economy would require at least as much stress on service and agriculture as on manufacturing. It is hypothesized, however, that " balanced growth " has a very special significance in the context of tax exemption laws. It does not refer to sectoral balance or even to the notion that industries must be commenced *en masse* to ensure a market, but rather reflects a development strategy which places particular emphasis on the problem of balance of payments deficits. It may be possible to go further and suggest that it reflects an autarkical preference.

A variety of policy measures are available to a country suffering balance

[21] United States Department of Commerce, *Investment in Pakistan* (Washington: U.S.G.P.O., 1954), pp. 1-2.

[22] Cf. Haskell P. Wald, *Taxation of Agricultural Lands in Underdeveloped Economies* (Cambridge, Mass.: Harvard Law School International Program in Taxation, Harvard University Press, 1959), Ch. III.

[23] *Republic Act 901*, I(2).

of payments deficits which will tend to correct the situation. The result in all cases, however, must be an increase in exports, reduction in imports or a larger inflow of capital. But the strategy of growth reflected in tax exemption laws is not neutral with respect to these alternatives. Although Panama grants income tax exemption to export industries only, and Israel, in its statement defining qualifying industries, mentions improving the balance of payments by increasing exports as well as reducing imports, and while Puerto Rico presents a special case of an area using tax exemption almost exclusively to increase capital imports which are used to establish export industries, most countries are interested chiefly in industries which will replace imports.

The policy of import replacement is in fact a corollary of the desire for new manufacturing, for it would seem highly unlikely that such enterprises would be able to compete in the export sector in the near future.[24] There are other features in the laws however which reinforce the import replacement orientation. Mexican regulations specify, for example, that firms must meet a certain proportion of the deficit in domestic production to qualify for exemption.[25] Another common provision which operates partially as a stimulus for import substitution is the requirement that no more than a certain percentage of costs may be imported. In Mexico no more than 40 per cent of direct costs of production may be imported, while the Philippine figure is 60 per cent of manufacturing plus reasonable selling and administrative cost.[26] In Guatemala the degree of exemption itself varies directly with the percentage of domestic raw materials used.[27]

External Economies: Rules demanding the use of local materials reflect a desire for less external dependence, but they also reflect the reasonable aim of establishing industries which will stimulate the development of other local suppliers. Both classical and modern theory would support the idea of establishing industries which use local materials, the former on grounds of comparative advantage, the latter in the hope of creating external economies.[28] In the typical case, however, the exempt manufacturing industries operate behind a wall of tariff and quota protection and show no signs of being able to compete in international markets, which indicates that the goal of external economy creation predominates. This is implicit in the conclusion of Ross and Christensen concerning the role of the 40 per cent import limitation.

> It is probable that this requirement has furthered Mexico's industrial development to a greater extent than has any other ele-

[24] For most underdeveloped countries, competing in international trade in manufactures would be difficult not only because of low efficiency but also because of the tariff barriers of potential trading partners. In the case of Puerto Rico, of course, the latter problem does not exist.

[25] Cf. *Regulations Under the Law for the Development of New and Necessary Industries*, Art. 9, printed in English as Appendix 11 of Ross and Christensen, *op. cit.* This regulation is not used in practice according to the authors (cf. *ibid.*, p. 73), but the intention is clear.

[26] Cf. *Law for the Development of New and Necessary Industries*, Art. 6, II, reprinted in Ross and Christensen, *op. cit.*, App. 10, and *Republic Act 901*, I(2) of the Philippines. In the Philippines the requirement may be waived under specified conditions.

[27] Cf. *Industrial Development Law*, Decree 459 of 11 December 1947, as amended by Decree 885 of 25 April 1952.

[28] That is external economies arising because an increase in A's output makes B's production more profitable, and vice versa.

ment in the tax exemption program. It creates in the exempt firm a domestic market for other firms in Mexico which can supply the exempt firm. Thus, one exempt firm of substantial size may cause the establishment of five others to supply it, and each of these firms may in turn cause the establishment of more, so that the process of industrialization becomes self-generating.[29]

Not all types of external economies, however, are fostered by the strategy implicit in incentive laws. Those which derive from the existence of a number of final assembly operations and lead to backward integration via the establishment of industries which stand between the final product and the basic raw material stage are often ruled out by the provision which requires a minimum value added. In Mexico, for example, costs of fuel, electric power and wages of workers participating directly in production must constitute at least 10 per cent of total costs of production.[30] In Puerto Rico the value added requirement has been interpreted by insisting that the wage bill represent 25 per cent of total costs.[31] Although some capital intensive chemical operations in Mexico have had difficulty in meeting the value added requirement,[32] most manufacturing operations probably would not. The basic intention, however, is clearly to exclude assembly operations without any analysis of the value of this form of enterprise as a first step in a process of backward integration.

Economies of Scale: Another feature of many exemption laws is the use of provisions designed to promote enterprise which will be large in terms of the particular economies concerned. This is evident from requirements calling for a minimum capital investment (Lebanon, Iraq) or a minimum number of employees (India, Ceylon). In Mexico early legislation contained the opposite limitation, i.e., granted relief to industries only if they did not exceed a maximum capitalization, but this policy was later reversed.[33] The Puerto Rican provisions that a substantial increase in output be forthcoming might also be interpreted as calling for larger than average concerns. It seems a fair generalization to say that countries employing the tax exemption desire to promote large scale firms, and this may be interpreted as a desire for the immediate attainment of economies of scale. This does not mean, of course, that the diseconomies of scale will not predominate in practice, nor does it mean that such rational economic considerations are the only ones which influence the strategy in the direction of bigness.

D. *Conclusions*

Part I has explored the role of income tax exemption in the strategy of economic development. It may be concluded that in countries possessing formal economic plans tax exemption will have a rather specific and limited place,

[29] Ross and Christensen, *op. cit.*, p. 71. Unfortunately the authors supply no evidence that this has actually occurred as a result of the operation of the exemption law, although there is no doubt that Mexico has entered a period of sustained economic advance.

[30] *Ibid.*, p. 70.

[31] Taylor, *op. cit.*, p. 54. The author points out that a NICB study showed that the wage bill in a cross section of U. S. manufacturing industry during 1950 ranged from 15 per cent to 60 per cent of total fabricating cost. Cf. *ibid.*, Ch. 6, n. 15.

[32] Ross and Christensen, *loc. cit.*

[33] Cf. Sanford Mosk, *Industrial Revolution in Mexico* (Berkeley: University of California Press, 1950), pp. 63, 193. Mosk shows that exemptions in the 1940-46 period went to larger than average size firms.

since it constitutes one of many measures designed to allocate resources between the public and private sectors and within the private sector according to the Plan outline. The chief problem with the use of exemptions in the case of the planned economy is that they may not be sufficiently controllable and consequently contribute to failure of the public sector to achieve its specified commitments. Since the Plan represents the kind of economy desired, measures which interfere with the creation of the desired pattern will be used with great discretion.

In countries without integrated Plans exemption may be considered by some policy makers to be a panacea which will provide the essential stimulus for industrialization via private capital formation. In most cases, of course, the exemption program will be coupled with other measures. Since exemption is not appropriate for agriculture under present conditions in most countries, other instruments must be employed in that sector. Moreover exemptions will never be asked to work in isolation in the manufacturing sector. Inevitably there will be high tariffs and other restrictions on imports which will provide shelter for any nascent manufacturing enterprise, and often special credit facilities and other benefits will be available to these concerns. Nevertheless it would appear that many underdeveloped countries without formal Plans wish to use tax exemption as an important element in the implementation of their development strategy. Their hope is that it will foster a substantial amount of investment in manufacturing which will transform the economy in a particular way by making it more self-sufficient and less subject to balance of payments pressures. Ideally, policy makers apparently wish investments to be owned and operated by nationals who will produce import substitutes on a large scale and create a local market for raw materials and various intermediate products.

PART II: EXEMPTION AS INCENTIVE

Whether income tax exemption can work significantly in the direction of promoting the amounts and kinds of investment desired depends essentially on the response of the prospective investors. The next step in analysis, therefore, is to examine the value of exemption from the point of view of the grantee. In the first section of this part an attempt to measure the value of income tax exemption by means of a formula will be made. Various factors which alter the results of the formula calculations will be discussed in the second and third sections, and further qualifications and conclusions will be presented in the final section.

A. *The Formula Approach*

When income tax exemption is directed at *homo economicus*, the stimulus takes the form of an increase in the prospective rate of return that he may realize from a potential opportunity.[34] Suppose an investor finds the internal rate of return from a possible business venture to be 5 per cent under a 50 per cent income tax. This rate may not be sufficient to induce him to invest, but a return of 6.5 per cent, let it be assumed,

[34] Where exemptions are offered to existing firms which have not expanded investment the stimulus takes the form of increased profits which enhance the ability of the firm to undertake future expansion or to maintain otherwise unprofitable operations. Exemption for existing firms may also be justified on grounds of maintaining "fair competition" in an industry containing exempt new firms.

would bring a positive decision. In this case five year exemption from the income tax on a perpetual annual return of $1,000 deriving from an initial investment of $10,000 would be sufficient to raise the internal rate of return to the critical 6.5 per cent level. The five year exemption, in other words, is sufficient to increase the internal rate of return by 30 per cent.

Another way to look at the situation is to ask how much, assuming a market rate of interest of 5 per cent, the present value of a perpetual income stream of $1,000 per year will be increased by five year exemption from a 50 per cent income tax. The present value of such a stream with the tax is $10,000, but five year exemption increases this to $12,164, i.e., 21.6 per cent.

These examples give some suggestion of the effects of exemption, but a more systematic investigation will indicate the relative importance of a number of factors. For this analysis a measuring device showing the percentage increase in the present value (V) of an income stream will be employed. The use of a percentage makes the effects on present values of streams of varying absolute size comparable, but it should be realized that even a large percentage increase may not make an investment worthwhile if the cost is high relative to the return in the first place, or if the return, while satisfactory in percentage terms is too small in absolute magnitude to warrant the effort involved in obtaining it.

Even the simple measurement of the percentage increase in present value requires explicit statement of a number of parameters. These include: 1. the tax rate in the absence of exemption (w); 2. the rate at which future income is discounted (r); 3. the length of the exemption period (a); 4. the investment horizon or period over which anticipated returns are taken into consideration in estimating the present value of the future income stream (b); 5. the tax rate during the exemption period (z). In constructing the formula it is assumed that a constant annual return (A) is anticipated, and it will be assumed throughout that exemption *per se* does not alter the rate of discount.[35] In the following paragraphs of this section the value of income tax exemptions will be examined by applying the formula to a variety of situations.

First, in order to highlight the significance of the initial tax rate (w), a special case will be considered. Suppose that a full exemption from income tax is granted for a period equal to the investment horizon (b). Then the percentage increase in the present value (V) of the future income stream depends entirely on the tax rate (w), and may be

[35] The formula is derived as follows:

$$V = \frac{V_1 - V_0}{V_0},$$

where V_1 is the present value of the stream with exemption and V_0 the present value without exemption. Thus,

$$V_0 = A(1-w)\int_0^b e^{-rt}\,dt,$$

$$V_1 = A(1-z)\int_0^a e^{-rt}\,dt + A(1-w)\int_a^b e^{-rt}\,dt,$$

and

$$V = \frac{w-z}{1-w}\,\frac{(1-e^{-ra})}{(1-e^{-rb})}.$$

In the computations which follow values are derived on the basis of this continuous discounting formula. Figures showing results when annual compound discounting is used may be derived from the formula

$$V = \frac{w-z}{1-w}\,\frac{1-(1+r)^{-a}}{1-(1+r)^{-b}}.$$

As (r) approaches zero the values derived from this formula approach those obtained from the continuous formula. In practice the discrepancies are quite small over the range of discount rates actually employed.

measured by inserting appropriate rates into the formula $V = \frac{w}{1-w}$.[36] Table I illustrates some values of (V) given various initial tax rates (w).

TABLE I

PERCENTAGE INCREASE IN PRESENT VALUE (V) OF AN INCOME STREAM OF CONSTANT SIZE WHEN EXEMPTION FROM TAXES OF VARIOUS RATES (w) IS GRANTED FOR THE ENTIRE DURATION OF THE FLOW

w	10	20	30	40	50	60	70	80	90
V	11.1	25	42.9	66.7	100	150	233	400	900

It is clear that the value of (V) rises more rapidly than the value of the initial tax rate; e.g., relief from a 30 per cent tax increases present value by 43 per cent, while relief from a 60 per cent tax increases present value by 150 per cent. Under the conditions assumed the only matter of importance is the level of the tax without exemption, and as might be expected the higher that tax the greater the benefits. What might not be intuitively obvious is the fact that exemption from a high tax is worth so much more than exemption from a lower one. This result, of course, is inevitable when percentages are employed.

Considering the importance of the tax rate it might well be asked what are typical levels in underdeveloped countries. On the whole the standard rates of income taxation are lower than in the United States or United Kingdom, but they are far from negligible. Moreover, in some countries, especially in South East Asia, corporate tax rates may approach 60 per cent. Many countries have rates around 40 per cent, while only a few cases fall below 20 per cent. While a country with high profits taxes may be inhibiting investment as compared to a country with lower ones, in the context of income tax exemption schemes, since it allows a significant amount of discrimination in favor of the exempt sector, a higher tax has an advantage. Thus Burma with corporate tax rates between 50 per cent and 58⅓ per cent can offer something substantial to exemptees, while Ghana with a 40 per cent rate has slightly less, and the Philippines with rates between 20 per cent and 28 per cent has much less room for discrimination.[37] On the other hand, where investors have the option of investing in other countries or other activities where a generally lower tax rate prevails, the effectiveness of such discrimination will be diminished. Tax exemption in this context may be conceived of as a passive equalizing measure since the choice from the point of view of the investor will then be between an opportunity, the return from which will be taxed at perhaps 25 per cent throughout, and one that will be exempt from tax for a certain number of years and then taxed at, say, 50 per cent. Under these circumstances the values in Table I, since they reflect the gains from full relief from tax, overestimate the benefits to the investor.

[36] This is easily seen from examination of the general formula in the preceding note. It is assumed that (z) equals zero and (a) equals (b).

[37] Tax rates are taken from International Chamber of Commerce (ICC), *op. cit.* The countries mentioned have tax exemption programs.

Even within the limited framework of an investor considering the return from an opportunity with and without exemption, the values in Table I may not be appropriate, since several assumptions underlying the calculations do not possess general validity. The first step towards more realistic values requires specification of the cases where the periods of exemption do and do not equal the investment horizon. The results of Table I require that these two periods be of equal duration, so that when the return is expected to flow over an indefinite time span the exemption must also be indefinite. Of course, if the stream is expected for only ten years, then the results apply for exemption lasting ten years, but there is no reason to assume that equality between investment horizon and exemption period will always hold. To gain perspective the nature of the exemption period and the horizon will be examined in more detail.

In practice income tax exemption laws provide relief for varying numbers of years, but the most common period is five years (Dominica, Antigua, British Guiana, Burma, India), or up to five years (Gambia, Ghana). The time span may vary according to type of industry (Mexico) or amount of investment (Nigeria), and may be as long as fifteen years (Mexico) or as short as two years (Haiti).[38]

Investment horizons, the periods which are considered relevant for discounting future income, cannot be ascertained so readily. In general it might be assumed that a business corporation will have an indefinite life, but there are undoubtedly investment opportunities with limited futures. One case in point is the firm which is organized merely to gain advantages of exemption and expects to liquidate upon expiration of the exemption. This is the "hobo" enterprise feared by exemption authorities, and it provides an example of a case where the investment horizon is equal to the period of exemption. In other cases, even though the investment horizon is in fact indefinite, the uncertainty of distant returns might be allowed for by choosing a relatively short cut-off date for calculation of present values.[39] If a five year horizon is employed to allow for uncertainty, a five year exemption will have the same value as an indefinite exemption, since all returns beyond the cut-off date are valued at zero.

In many instances it may be assumed that the investment horizon is infinite. In this case, since a slight modification of the formula is required, the value of exemptions will differ from the results in Table I.[40] Table II indicates the pattern of values of (V), the percentage increase in present value with exemption, given an infinite horizon and various exemption periods and discount rates. It is assumed that exemption is

[38] *Ibid.*

[39] It is common practice in making investment decisions to demand that the investment pay for itself in a few years. Only investments which pay off in five years, for example, may be considered worthwhile risks. In this case the annual return without discounting must equal 20 per cent. While the formula employed in this paper does not indicate the results of this type of rule directly, it may be used to obtain similar results by shortening the horizon (b), which will progressively lower the calculated present value. As an alternative the horizon may be considered infinite, but a high rate of discount may be used. This has the effect of progressively lowering the present value as the rate is increased. The effects of these rules on the value of exemptions will be discussed below.

[40] With an infinite horizon, assuming $z = 0$, the required formula is

$$V = \frac{w}{1-w}(1 - e^{-rs}).$$

complete and that the tax rate in the absence of exemption is 50 per cent in Table IIa and 25 per cent in Table IIb.[41] From Table IIa it is seen, e.g., that a seven year exemption from a 50 per cent tax raises (V) by 50 per cent when future income is discounted at 10 per cent. An indefinite exemption in this case would raise (V) by 100 per cent, so that the seven year restriction cuts the stimulus in half. With a fifteen year exemption and a 25 per cent discount rate, (V) reaches a value of 98 per cent, virtually equal to that under exemption for an infinite period. This follows from the fact that at such a high rate of discount the present value of income received after a fifteen year period is reduced to negligible amounts.[42]

The central fact revealed in Table II is that combinations of high discount rates and relatively long exemption periods yield results under the assumption of an infinite investment horizon which closely approach those under the assumption of horizon equal to exemption period, while combinations of short exemption periods and low discount rates yield values of (V) far below these.

In practice the actual length of the exemption period is known, but the appropriate discount rate is less certain. The formula assumes that some market rate of interest is used, and this might suggest, e.g., the loan rate of the International Bank. On the other hand it is possible for individual investors to use a much higher rate as a method of allowing for uncertainty. In this case the formula is converted to a device similar to the short pay-off period approach for estimating the advisability of undertaking a particular investment. It is clear that the use of a high discount rate for this purpose significantly increases the value of exemption as an investment

TABLE II

Percentage Increase in the Present Value of an Income Stream of Constant Size and Infinite Duration Discounted at (r) Per Cent When Exemption from a 50 Per Cent or a 25 Per Cent Income Tax Is Granted for the First (a) Years of the Flow

Table IIa

50 per cent tax rate.

a	r						
	.03	.05	.08	.10	.15	.25	.35
2	6	10	15	18	26	39	50
5	14	22	33	39	53	71	83
7	19	30	43	50	65	83	91
10	26	39	55	63	78	92	97
15	36	53	70	78	89	98	99.5

Table IIb

25 per cent tax rate.

a	r						
	.03	.05	.08	.10	.15	.25	.35
2	2	3	5	6	9	13	17
5	5	7	11	13	18	24	28
7	6	10	14	17	22	28	30
10	9	13	18	21	26	31	32
15	12	18	23	26	30	33	33.2

[41] For values of (V) with other tax rates (w), the numbers in Table II must be multiplied by $w/1 - w$, i.e., the (V) values of Table I.

[42] Any combination of discount rate and exemption period which yields when multiplied a value greater than 3.75 will lead to this result. Thus with a discount rate of 10 per cent the exemption period would have to be about thirty-eight years for the increase in (V) to approach the value of the increase attained when the horizon and exemption period are equal. For (V) to reach the 50 per cent level the multiplied value of the discount rate and exemption period must exceed 0.70.

stimulus. This is so because the high discount rate places a relatively high value on the near returns of the exempt period while it reduces to negligible amounts the returns in the later taxable years. Of course a high discount rate will make many more investments appear unprofitable than a low one, but the stimulating effect of tax exemption itself is more pronounced with high rates.

In cases where the horizon is not infinite and yet does not equal the exemption period the general formula must be applied. Tables IIIa and IIIb give the results for selected combinations of exemption period and investment horizon, assuming respective discount rates of 5 per cent and 10 per cent.[43] Examination of Table III indicates that for a given investment horizon (b) the value of the exemption increases as the period of exemption (a) lengthens. Conversely, with a given exemption period, the value of the exemption decreases as the horizon lengthens. It is also apparent that the values in Table IIIa are uniformly lower than the corresponding values in Table IIIb, i.e., the value of exemption *per se* increases as the discount rate rises. The discrepancies are not too large when comparing a 5 per cent with a 10 per cent rate, but they would increase rapidly if the discount rate were raised substantially. The Tables show in general that high discount rates coupled with long exemption periods and horizons yield substantially greater values of (V) than long exemptions with lower rates of discount, while differences in the rate of discount play a lesser role with shorter exemptions and horizons.

An important point revealed in Table III is that when the investment horizon is artificially shortened in order to allow for the risk attached to distant returns, the value of exemption itself is increased. Although the device will result in the rejection of many opportunities which might appear profitable given a longer horizon, the effect is to increase

TABLE III

PERCENTAGE INCREASE IN THE PRESENT VALUE OF AN INCOME STREAM OF CONSTANT SIZE FLOWING FOR (b) YEARS AND DISCOUNTED AT RATES OF 5 PER CENT AND 10 PER CENT WHEN EXEMPTION FROM A 50 PER CENT TAX IS GRANTED FOR THE FIRST (a) YEARS

TABLE IIIa

b	a					
	2	3	5	7	10	15
3	68	100	100	100	100	100
5	43	64	100	100	100	100
10	24	36	56	77	100	100
20	15	22	35	48	62	84
25	13	20	31	42	55	75
50	10	15	24	33	42	58

r = .05

Table IIIb

b	a					
	2	3	5	7	10	15
3	69	100	100	100	100	100
5	46	67	100	100	100	100
10	29	41	62	79	100	100
20	21	30	45	58	73	91
25	20	28	42	54	69	85
50	18	21	39	50	63	79

r = .10

[43] The values in Table III assume relief from a 50 per cent tax, but these values may be converted to those corresponding to other tax rates (w) by multiplying the results by $w/1-w$.

the particular influence of tax exemption as a stimulus.[44]

To this point it has been assumed that total exemption will be allowed during the period (a), but in actuality some countries offer only partial relief. Mexico, for example, allows a maximum reduction of 40 per cent in the income tax for the whole period, while French Equatorial Africa allows two to three years of full exemption and 50 per cent exemption during the following two years. Another variation is the Philippines' system which plans to taper off in steps the degree of exemption for all remaining beneficiaries from 100 per cent to 10 per cent between 1959 and 1962. These restrictions naturally diminish the value of the relief, and the same may be said of the Indian type of exemption which limits tax free income to a certain percentage return on investment.[45]

The formula analysis presented, although useful in determining relative magnitudes under various hypotheses concerning exemption period, investment horizon, and discount rate, is subject to severe limitations. While it would be quite satisfactory in the case of incentives for purchasing annuities or fixed income securities, the variability and uncertainty connected with profits in the real world circumscribe its usefulness in dealing with incentives for establishing manufacturing enterprises. The formula, as was demonstrated, may be used to allow for uncertainty by selecting arbitrary horizons or discount rates, but there is no special reason to think that investors will choose to employ these particular devices. Alternatively, it would be possible to choose an income stream which supposedly corresponds to the representative path of profits growth in a new firm and use this in evaluating the stimulus, but the actual diversity of histories of exempt firms would make the results obtained only a little more realistic, while the problems of computation would multiply.

Another problem in evaluation of the results of the formula computation lies in the fact that the various parameters may fluctuate. In the calculations, it was assumed that the future tax rate would equal the initial tax rate (w). In practice this may not be the case, but some governments, apparently considering the future tax rate an important matter for the firm, offer as a concession long term commitments with respect to tax status. French West Africa, for example, protects the new enterprise from changes in tax laws for up to twenty-five years, while Greece may give this concession for up to ten years.[46] Usually uncertainty with regard to future tax status will prevail, however, and where the probability of tax reform is great, this will influence the evaluation of the exemption. In his study of Puerto Rican taxation, for example, C. F. Phillips suggests that until firms see the shape of a more permanent tax structure, they will wonder how long they are to remain.[47] Clearly the same thought would occur to a rational investor con-

[44] If uncertainty is allowed for simply by projecting a low annual return (A), there will be no special influence from tax exemption. The special effects occur only when the horizon is artificially shortened or an artificially high discount rate is used.

[45] The value of exemption in terms of the formula can be calculated in most of these cases by using an appropriate value of (z).

[46] French West African incentives, however, take the form of investment allowances and rapid depreciation. Cf. ICC, *op. cit.*, p. 16. Nor does Greece give income tax exemption as such.

[47] Charles F. Phillips, *A Tax Program to Encourage Puerto Rico's Economic Growth* (Washington: National Planning Association, 1958), p. 23.

sidering the value of a prospective Puerto Rican exemption.

Uncertainty, of course, has a much wider sweep than can be directly encompassed by the parameters of a simple formula. Any of a whole range of government policy changes can affect the position of the firm, and its willingness to invest might well be modified if it had foreknowledge of these events. If known, however, the results of some of these changes could be incorporated in the formula.

B. *Non-Formula Considerations*

Although it is possible to adjust the formula for factors outside its immediate compass, it will be simpler to examine these in a less rigorous setting.[48] First some factors which generally decrease the value of exemptions will be examined, then others which enhance it and thus tend to offset the first group will be discussed, and finally the less certain role of tax shifting will be mentioned.

In the formula approach it is implicit that exemptions are certain and costless. Although under the old legislation of Pakistan and currently in India exemption is automatic,[49] in most cases obtaining relief requires a complex application and approval procedure involving considerable time, effort, and expense. Puerto Rico, for example, has a stated policy of rapid processing of applications, but the actual time has averaged four to seven months.[50] In Mexico law requires that applications be acted upon within 90 working days from the date all documents, statements, and data are submitted, but administrative practice often involves additional requests for information which serve as an excuse for delaying final action.[51] The entire procedure requires 12 to 18 months on the average and may run to over two years.[52] In his study of Ghana, Perry found the applications which he was able to check averaged nine to twelve months for complete disposal, and he was most concerned because in one case the applicant waited seven months to receive a rejection.[53] Undoubtedly long periods of delay coupled with the possibility of eventual rejection substantially reduce the value of exemption for many investors. The cost of hiring legal counsel, making up complex documents concerning the prospective operations, and appearing before various committees or at public hearings also operate in this direction.

Even when a grant is approved, in evaluating its worth the beneficiary must consider the possibility of burdensome interference in the operation of his business. In Mexico, for example, Ross and Christensen indicate that the exempt firm will be subject to special scrutiny and control. "Tax exemption," they say, "merely provides the vehicle for getting

[48] Most of the factors to be discussed in the rest of this section as well as the problem of depreciation, which will be mentioned in section D below, could be handled in terms of the formula if the implicit assumption that income (A) is the same with and without exemption is removed. In that case, however, the required formula becomes more complex, since the (A) terms will not cancel out.

[49] In India the government may, by notification, direct that the exemption shall not apply to a particular undertaking, but it apparently has never done so. Cf. National Council of Applied Economic Research, *Taxation and Foreign Investment* (2d ed. rev.; Bombay: Asia Publishing House, 1958), p. 42.

[50] Taylor, *op. cit.*, p. 37.

[51] Ross and Christensen, *op. cit.*, p. 86.

[52] *Ibid.*, p. 89.

[53] Perry, *op. cit.*, p. 44.

some of the new ventures to submit voluntarily to government direction." [54] In general, tax exemption may lead to a loss of anonymity which may have undesirable consequences from the point of view of the firm.[55]

The various special restrictions in the exemption laws discussed in Part I can also diminish the value of the stimulus. Here there may be a conflict between the goals of national development policy and the interests of individual businessmen. Requirements that exempted companies use a certain percentage of raw material of local origin, employ local personnel, and so forth, circumscribe the range of production possibilities. In many instances the firms would undoubtedly choose to operate within the permissible range, but where a restriction requires movement from the point which would otherwise be considered optimal, the loss from such movement must be taken into account in evaluating the benefits of exemption. One Mexican television manufacturer, for example, found that compliance with the 60 per cent domestic cost rule meant switching from low priced foreign materials to higher priced Mexican supplies. Because he anticipated tariff increases which would reverse the situation, he made the change. Nonetheless the value of exemption was reduced during the period when foreign supplies cost less.[56]

To this point factors which generally diminish the value of exemption as given by the formula have been considered. There are, however, some features which operate to increase this value. Income tax exemption, for example, is generally allied with exemption from a number of other levies. Most countries offering income tax exemption also relieve the firm from payment of import duties on materials and equipment. In Mexico exemption may cover stamp taxes, the Federal commercial receipts tax, and export duties as well, while Puerto Rico provides relief from property taxes and municipal license levies. When these exemptions are added to the benefits of the income tax "holiday," the total value of the package will generally be increased substantially.[57]

A number of other special benefits which enhance the value of income tax exemption may be available to the firm. In the Philippines, for example, general government policies are likely to be most favorably interpreted in the case of the exempt enterprise. The concern may expect priority in the allocation of scarce foreign exchange, protection in the form of high tariffs, quotas, or complete banning of competing goods, and preferential credit extension from official financial institutions. In Puerto Rico, too, exempt firms are privileged firms. They may receive special aid in the form of help in securing good factory buildings in proper locations on reasonable lease or sale terms, engineering advice, financial help, assistance in hiring and training supervisors and workers.[58]

Whether a corporation income tax is largely shifted is a complex question

[54] Ross and Christensen, *op. cit.*, p. 91.

[55] In Mexico, e.g., the presence of tax relief for some of a company's products is thought by some investors to create additional difficulties with the regular tax authorities who might scrutinize the accounts of the firm's nonexempt items more carefully in order to make up the difference in revenue. Cf. *ibid.*, p. 101.

[56] *Ibid.*, p. 104.

[57] Some of these taxes would have been allowed as expense deductions so that the amount of exempted tax must not be confused with the value of the relief.

[58] Cf. William H. Stead, *op. cit.*, p. 91.

which cannot be resolved here.[59] Nevertheless, it must be noted that shifting or nonshifting play a role in determining the value of exemptions. If the tax is not shifted it would seem most probable that the full benefits of exemption will accrue to the firm. Since nonshifting implies that the tax would not have affected prices, costs, or output, the gross profit position of the firm should remain the same with or without the tax. This, in fact, is the situation which is implicit in the formula calculations.[60] On the other hand, when the tax is shifted, alterations in prices, costs and output will change the gross profit position. For the entire benefit of exemption to accrue to the firm the presence of income tax relief must not lower this gross profit position; but since shifting implies that the firm accounts for the tax in its price and cost policies, it would appear that some reversal of the shifting process might well result. Whether this will occur depends upon market structure, demand conditions, and general business practice so that no easy conclusion can be drawn. Firms in the highly competitive radio-television industry in Mexico, however, do maintain that tax savings are largely passed on to the wholesaler or consumer through lower prices.[61] It is even conceivable that in certain circumstances relief from income tax might touch off a price war which would wipe out all profits. Tax exemption, therefore, because of the process of shifting may lead to changes in gross profits which change the value of the exemption from that observed in the formula calculation in an important way. This change, however, need not be in the direction of lowering of benefits, for with an elastic demand the lowering of prices will increase gross revenues and might lead to profits greater than those realized before. The effects of shifting are consequently not generally determinable and must be investigated in each particular situation.

C. *Exemption as an Incentive Unrelated to Profitability*

It has been assumed to this point that exemptions will act as an investment stimulus by increasing prospective profitability. The formula computations indicate the magnitude of the increase, while the nonformula considerations, for the most part, merely modify this simple result. Many investments, however, are made without direct reference to profit considerations. Where the investment is undertaken to improve employee welfare, to gain prestige, or from fear of losing a market position this will often be the case. Since investment policies serve a number of different objectives, not simply profit increase alone, the degree of reduction in the volume of investment attributable to tax disincentives is overstated when reference to profit decrease alone is made. Conversely, the amount of investment that can be induced by offering tax concessions which increase profitability is overstated.

There is one important consideration, however, which operates in the direction of enhancing the value of the tax incentive beyond effects on profits. The promise of a "tax holiday" may engender a nonrational response from the

[59] For a recent review of the literature cf. B. U. Ratchford and P. B. Han, "The Burden of the Corporate Income Tax," *National Tax Journal*, X (Dec., 1957), pp. 310-324.

[60] The formula used in section A assumes the tax is capitalized. This means, in effect, that it is not shifted.

[61] Cf. Ross and Christensen, *op. cit.*, p. 104.

potential grantee because it serves as an advertising lure which stimulates interest in the potentialities of an area. A foreign investor, for example, may feel that taxes at home are particularly oppressive and respond positively to any suggestion that he might be able to enjoy the advantages of a life free of such burdens. Taylor in his study of Puerto Rico places great emphasis on this aspect of the exemption law. Tax relief, he feels, acts as a " psychological triggering device " which draws capital and entrepreneurship from the mainland in a fashion having no direct relationship with the amount of subsidy involved.[62] When this phenomenon is considered it is not surprising that one expert, emphasizing the aggressive advertising methods of Puerto Rico and Israel, stressed the need for better public relations in order to improve the operation of an existing statute in Ghana.[63]

D. *Further Questions and Issues*

One special problem which has not been discussed is the relation of income tax exemption to incentives provided by special depreciation allowances. In Israel, Ghana, India, Jamaica, and a number of other countries and territories rapid depreciation is coupled with income tax exemption.[64] The method of depreciation, of course, is most important in determining the amount of income for tax purposes, and initial allowances or other devices for rapid write-off can significantly reduce the base. The investor, however, must not conclude without investigation that he will be able to obtain the combined benefits of acceleration and exemption. It is clear that during the period of exemption the best results are obtained with the most decelerated depreciation technique. In this way allowances are delayed until after the expiration of the income tax relief.

In practice the possibilities of combining depreciation and exemption vary. Ghana, for example, requires no depreciation during the " holiday " period, and, provided the assets are retained, allowances may be taken after the expiration of the exemption.[65] In Israel, on the other hand, the investor apparently must choose between depreciation benefits and exemption benefits since there is no provision for delay.[66]

An interesting attempt to deal with the conflict between accelerated depreciation and exemption is found in the Jamaican *Industrial Incentives Law* of 1956. In the simplest of two options the grantee is provided exemption from income tax for seven years from the date production begins. During this period notional depreciation allowances must be taken, and after the exemption expires depreciation is continued from the written down base.[67] Under the second option the grantee may choose four consecutive years of full exemption followed by two additional years with two-thirds and one-third relief. Prior to the commencement of the exemption period, which at the option of the grantee may fall at any time during

[62] Taylor, *op. cit.*, pp. 143-44.

[63] Perry, *op. cit.*, pp. 41, 47.

[64] ICC, *op. cit.*

[65] Alan H. Smith, *op. cit.*, p. 365. It is pointed out that this provision may lead to uneconomic retention of old capital equipment in order to gain tax advantage.

[66] Cf. Amotz Morag, " Income Tax Exemption and Accelerated Depreciation," *Public Finance*, 11, 1956(4).

[67] *Industrial Incentives Law* (1956), Sec. 11.

the first three years of operation, annual allowances for depreciation may be taken, but these must cease during the first four years of exemption. After that time allowances may be continued on the basis of values at the beginning of the four year period.[68] Thus with the first option the grantee must choose between the benefits of rapid depreciation and income tax exemption, while under the second he may to some extent obtain both. It would involve a nice calculation and considerable judgment to decide which alternative would be worth more.

The discussion of exemption as an incentive to this point has concerned itself entirely with the benefits granted directly to a business enterprise. Many exemption statutes, however, extend benefits beyond the firm by allowing individuals and other outside equity holders to exclude dividends from tax exempt profits from their income tax base. This is true in Burma, Ceylon, India, Sudan, and many West Indian jurisdictions, for example. In some cases (Sudan) this rule applies only during the period of exemption, while in other instances it applies for a restricted period which reaches beyond the expiration of exemption (Grenada, two years). Some laws also allow recipients of rent (Puerto Rico) or interest (India) to exclude these payments from taxable income.

Provisions of this sort extend the range of the incentive, and in some cases substantially increase the tax advantage deriving from investment in exempt activities. Moreover such features exert a dual force in the direction of less reliance upon internal financing, for they make investment by outsiders look more attractive and they tend to pressure the firm's directors to declare dividends. In this fashion they aid to some extent in the important process of creating a capital market, the existence of which should lead to greater mobilization of savings and better allocation of investment funds.

In the discussion of the value of exemption as incentive another distinction that has been omitted is that between the foreign and domestic investor. In Part I it was noted that underdeveloped countries may not be so eager as is sometimes supposed to attract private direct investment from abroad. Here it may be added that the tax law in the capital exporting country itself can influence the value of tax exemptions provided to the investor by the capital importing country. This influence operates through the manner in which the capital exporting country treats the foreign income of its residents. The United States, for example, will generally tax the world wide income of its residents during the year in which it is earned. If foreign income of a resident has been subject to tax abroad, the U. S. resident may be allowed to credit this tax against his home tax liability.[69] If, however, he is operating under exemption in the foreign country, there will be no foreign tax to credit. Consequently his U. S. tax liability will offset the advantages of the exemption.[70] To avoid this situation the U. S. investor usually must incorporate abroad. In the case of a foreign subsidiary of a U. S. corporation, for example, no U. S. income tax liability will be incurred unless the sub-

[68] *Ibid.*, Sec. 12.

[69] *Internal Revenue Code of 1954*, Sec. 901.

[70] This does not apply to certain U. S. corporations operating under exempt status in Puerto Rico. Cf. *Internal Revenue Code of 1954*, Regulation Sec. 931-1(a).

sidiary pays a dividend to the U. S. parent, and thus the full benefit of exemption can be obtained until such a dividend is paid. Once a dividend is paid, however, the dividend will be subject to U. S. tax at the ordinary rate,[71] and the benefit of exemption will have been in the form of deferral of tax rather than full exemption from tax. In Canada, on the other hand, dividends received by domestic corporations from their foreign subsidiaries are generally exempt from Canadian income tax,[72] and the corporate investor may therefore obtain the full benefits of exemption in the underdeveloped country even when income is paid to the parent in the form of a dividend.[73]

It may be concluded that tax exemption offers incentive to both domestic and foreign investors, but the degree of stimulus is not so large as might appear. Investor gains take the form of enhanced financial ability and increased incentive to undertake business operations in the exempt sector. The financial ability to undertake investment is perhaps most improved by exemption from import duties, license and property taxation. Relief from income tax aids in the ability to undertake further expansion, but does not play such a large initial role, although it may mean that loan capital is easier to obtain since the chance of having the means to amortize debt will be greater. On the other hand, the incentive to invest is increased by the granting of income tax relief, for the estimated profit picture will generally look much better, but there is little incentive for further expansion unless the enlarged facilities will also receive exempt status.

Ability effects are very important for local investors who have difficulty in raising sufficient capital to operate an enterprise, while they may be less important for the foreign investor who can more easily tap capital funds on reasonable terms in the home country. Incentive effects, which appear in the form of a rise in the prospective rate of return, will be important for all investors who emphasize profitability. They become very important for the local investor if they are strong enough to raise the return in manufacturing to the point where investment in that sector appears more profitable than investment in some more traditional line, while their importance to the foreign investor becomes significant if they raise the rate of return over that which could be obtained in manufacturing in some other country. It should be clear, however, that many investment decisions will be divorced from direct profitability calculations.

[71] Had the dividend been taxed in the foreign country the U. S. parent would generally be entitled to credit this tax against its U. S. income tax liability. Cf. *Internal Revenue Code of 1954*, Sec. 902.

[72] *Income Tax Act*, Sec. 28(1)(d).

[73] The problems connected with the treatment of foreign income in capital exporting countries and the relation of this treatment to exemption laws in underdeveloped countries are very complex and would require a separate study. It must not be assumed, for example, that the present treatment of foreign income in the United States law is undesirable from the point of view of the underdeveloped country. Cf. Oliver Oldman, "United States Tax Law and Treaties Affecting Private Foreign Investment," *Federal Bar Journal*, 19 (October, 1959), pp. 342-356, and Stanley S. Surrey, "The Pakistan Tax Treaty and 'Tax Sparing'," *National Tax Journal*, X (June, 1958), pp. 156-167.

THE BALANCE SHEET ON CAPITAL BUDGETING

LYLE E. SCHALLER *

THE tremendous demand for capital expenditures of an unprecedented volume has encouraged a substantial number of our American cities to turn to the capital budgeting procedure as a means of improving their financial *planning*, and often with the hope that it will ameliorate their financial problems. There should be no question that the careful planning of future capital expenditures will be an aid to the decision making process at budget time. However the acceptance of capital budgeting does not mean that a community's financial worries have been eliminated. Capital budgeting is not an end in itself. It is merely an administrative device which should prove helpful in budgeting expenditures.

The advantages of such a programming procedure are many, and most of them have been widely publicized. They include:

1. The means for a comprehensive, long-range analysis of the city's needs and of the resources for financing these projects.
2. The opportunity to coordinate capital expenditures and debt service with the annual operating budget. Particularly important is the advance knowledge of increased operational costs which will arise from the proposed capital projects.
3. Stabilization of the volume of public improvements at a reasonably uniform level.
4. The opportunity for advance acquisition of real estate. This may not only save money but should eliminate some of the delays incurred when acquisition is postponed to a late date.
5. Increased possibilities for participation in state and federal aid through advance planning.
6. More time to plan projects and to prepare for resulting personnel changes.
7. Less chance for impetuous action which may have unthought of effects on the general city program. A long-range program which has been officially adopted by the city reduces the possibility of a pressure group selling a project which is premature or not essential.
8. The opportunity to schedule bond issues to take advantage of favorable changes in the money market.
9. The means for improving public relations and for helping the citizen to become acquainted with his city's capital needs and plans.

In addition to these recognized specific advantages another major benefit is that a " consciousness of planning " is encouraged. Adoption of the procedure often encourages operating departments to develop a continuing awareness of the need to plan for the future of their operation. There is also the advantage that policy makers have an increased awareness of tomorrow's needs as they act and make today's decisions.

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Furthermore the capital budgeting procedure has certain appealing political advantages. It " formalizes " postponement of a capital request. The elected officials can temper the disappointment which results from elimination of a capital request by postponing rather than eliminating the appropriation. Let tomorrow's officials worry about the decision.

Possibly the greatest advantage is that long-range financial planning is a concrete and specific aid in countering the frequently expressed myth that " We're at an unusually high level of governmental activity now, but when these immediate projects are completed we'll be able to reduce expenditures and stabilize the tax rate." The most cursory look backward at the pattern of urban growth during the past two decades should dispel such wishful thinking. If that does not convince, then an examination of the age distribution of the population and trends in family size should be sufficiently striking to persuade anyone and everyone that the heavy demands on local government for additional capital improvements will continue for at least a generation. But the fact remains, despite the weight of the circumstantial evidence, that many, many citizens—and also many officials of local governments —actually believe that, once the current " crisis " is past, the " good old days " will return, the bonded indebtedness will be reduced and eventually eliminated, the " extra " public employees can be laid off and taxes can be reduced. This myth, that the current level of governmental activity and capital construction is a temporary phenomenon, is one of the greatest obstacles in achieving good government. Such an unrealistic attitude virtually makes it impossible to do any effective really long-range planning. Whatever help a capital improvement program can do in bringing citizens and government closer to reality in this respect is of inestimable value.

These and other advantages make adoption of a capital budget and program very attractive. It is an obligation of responsible government to adopt all procedures and methods which will make that government more effective, efficient and responsible. However any " new idea " should be examined, not only for its advantages, but also for its disadvantages and weaknesses. The capital improvement budget and program is not a new idea, but it is a relatively new practice for most units of government. The growth and complexity of municipal government today make it highly important that any proposal, such as developing a capital improvement program, receive thorough and thoughtful consideration. Such consideration should include the disadvantages and resulting problems.

One of the first problems arises from the distinction between a capital budget for the coming fiscal year and a long-range capital improvement program. Presumably the former is a firm commitment for an appropriation while the latter is only a plan and does not guarantee a future appropriation. Department heads have a tendency to believe any request included in the long-range program not only implies but assures an appropriation of the necessary funds. It is only one step beyond this for the department head to propose, " If you are going to appropriate the money for this new building in 1963, why not give us the money now? We'll

have the use of the building for the intervening years and save by letting the contract before building costs go up even more. By approving it for 1963 you concede the need; let's have the money now." The budget officer's obvious reply is that it is necessary to program expenditures to match anticipated revenues, but this answer does not satisfy the " practical " department head.

Another problem may arise from the fact that a capital improvement program is usually printed and distributed to all interested parties. The mere act of committing the program to paper formalizes it. It is quite possible that this financial plan may have the disadvantages of a straitjacket rather than the advantages of a crystal ball. A more realistic and practical way to think of the capital improvement plan would be as comparable to the roster of a baseball team in spring training. It should be presumed that changes will be made, some items showing promise now subsequently may be eliminated, and others may rise to a higher position of eminence. In some instances it may be necessary to do some trading. For example, the unexpected requirement by the Fire Underwriters for more water reservoirs may be granted only if the proposed new service building is eliminated or postponed. The unexpected need for a new animal shelter at the zoo may force postponement of the proposed new greenhouse. Adoption of a long-range program should mean that planning has begun, not ended. The tendency is to assume the reverse.

A more involved problem is the role of the planning agency in the " processing " of the capital improvement program. Traditionally the preparation of this program has been ascribed to the local planning agency. Certainly planning must be brought into and become an integral part of the capital budgeting process. This is one of the reasons for the existence of a planning agency. Furthermore under the weak executive-strong legislature system with a multiplicity of boards and commissions—and this is our traditional form of local government in America—it may be necessary for the planning agency to do the job if it is going to be done. However the exigencies of city government today are resulting in an increase in the responsibilities of the chief executive, particularly in the field of finance. These increased responsibilities suggest that his authority in the administration of financial matters should be increased. Concurrently the planning departments are changing in character. The physical expansion of our cities, the increasing volume of traffic, the adoption of new programs such as urban renewal, and the implementation of stronger land use controls make the planning department look more and more like a line agency and less and less like a staff department. The decision making process is focused more on the professional staff and less on the advisory commission members. The press of time and the complexity of the problems accelerate this change in the power structure.

How does this affect capital budgeting? In the first place the trend to charge the chief executive with responsibility for finances means that he must have a greater voice in programming expenditures. The natural tendency is for the office of the mayor or manager to assume the responsibility for capital budgeting. If it is delegated, it is as logical that it be delegated to the budget

or finance office as to the planning agency.

One alternative, adopted by some cities, is to divide the process into two phases—planning and financing—and delegate each to the appropriate agency. However this has its disadvantages, particularly in establishing priorities and scheduling programs.

The problem is more acute in those situations where the scope of the planning function has increased to the point that operating departments may view the planning agency as another line department, a line department competing with them for funds. It is not unreasonable to expect that these other line departments may have some misgivings about the planning department having a voice in the decision making process involving their requests.

Another area of concern to many is the location of the authority for policy decisions. This results from the combination of three factors.

1. Most important policy decisions involve appropriations and what is appropriated for one purpose affects what may be appropriated for other purposes.

2. Any major improvement in the quality of service in most municipal functions usually is dependent upon additional capital expenditures.

3. The implementation of the capital improvement program requires appropriations of public funds. Thus if the decisions made in the preparation of the capital improvements program are not made by the city council, or its representatives, then one of two things will probably occur. The council will tend to ignore the capital improvement program or a substantial amount of financial authority will be granted to persons who are not politically responsible or responsive.

The only alternative is to make the capital budget an executive budget. This implies a strengthening of the role of the chief executive. Such a course of action may not be a popular one with the legislative body.

It does appear, however, that if the capital improvement budget is to be an effective and useful device, responsibility for the preparation must rest with either the council or the chief executive if responsible representative government is to be maintained.

There are other problems of municipal government which are not solved by the adoption of capital budgeting. Those semi-independent boards and commissions over which the council does not have line item budget control may or may not elect to cooperate. If they refuse to cooperate, this can adversely affect the usefulness of this kind of financial programming. This, however, is a fault of governmental structure, not of the financial planning process. The capital improvement program may emphasize the problem; it cannot be expected to correct it.

No matter how much care is exercised in the preparation of a long-range financial programming, the voters still have the right to alter the plans by their votes on bond referenda. In some communities extraordinary majorities are required and/or a large percentage of previous bond proposals have been turned down at the polls. In such communities it is easy to argue that a long-range financial program is not possible or is not practical. However, in some instances the negative vote of the people may have resulted, at least in part, from the lack of financial planning. A good capital improvement program is an excellent means of informing the public on the needs of the

community and may have a favorable effect on such ballot questions, if the electorate can see how any one specific proposal is a part of a large, inclusive, well thought-out program.

Possibly the greatest drawback to the whole concept is that it can be used to give the impression that things are being done when actually nothing is being accomplished. Talk is cheap. Many of the problems of our cities of today are urgent problems. While there is a need for good financial planning, there is also a need for action. Too often plans for tomorrow make a poor substitute for action for today.

In summing up the experiences of one community in particular and observations of other communities in general, there appears to be no doubt that the municipalities of today have available a very useful tool in the capital improvement program. However, it is only a means to an end and is no substitute for effective and responsible political leadership in meeting the problems of our cities of today.

PROGRESSIVE INCOME TAXATION, INCOME REDISTRIBUTION, AND THE CONSUMPTION FUNCTION

T. R. BEARD *

PROGRESSIVE taxation, and in particular a progressive income tax, presents a key policy issue in a democratic society. The history of the discussion of the merits of progressive income taxation reveals a complex and rather bewildering verbal barrage both by those who accepted the principle and by those who flatly rejected it. Blum and Kalven felt that in the last twenty years of the nineteenth century—the "decisive interval in public acceptance of the idea in England and the United States"[1]—most of the relevant theoretical discussion was actually unfavorable to progression. Major objections to the principle of progression revolved around its effect on complicating the tax laws, including an expansion of the opportunity for legal avoidance, and the potential political irresponsibility inherent in a system in which the higher surtax rates are dictated by a voting majority, but fall on a minority.[2]

The most devastating attack, and the most "academic," argued that progression lessened the economic productivity of society by reducing the amount (and quality) of work expended and/or by impeding the process of capital formation through reducing the volume of saving (and thus investment). Such an argument has continued to be a significant one. Even those who ultimately advocated a progressive income tax often acknowledged these detrimental effects. Simons, for example, felt that, ". . . it is hardly questionable that increasing progression is inimical to saving and accumulation . . ."[3] A major reason for this conclusion was that, "Increasing progression means augmenting incomes where saving is impossible and diminishing incomes too large to be used entirely for consumption."[4] Pigou, while advocating progression based on *least sacrifice* as the ultimate principle of taxation —the validity of which "appears . . . to be given directly in intuition"[5]—recognized the effects upon work incentives and capital accumulation of a system which imposes equal marginal sacrifices upon all taxpayers, and thus felt the need for a system which is "less severe."

Justification for Progressive Taxation

Advocates of progression have advanced numerous justifications based on "sacrifice" theories, including the

* The author is a James B. Duke Fellow in Economics at Duke University. He wishes to express his appreciation to Dr. B. U. Ratchford for reading the manuscript and suggesting numerous improvements. Mr. William Mauer and Mr. William Shropshire have also been most helpful. The errors are, of course, solely the property of the author.

[1] Walter J. Blum and Harry Kalven, Jr., *The Uneasy Case for Progressive Taxation* (Chicago: University of Chicago Press, 1953), p. 14.

[2] *Ibid.*, pp. 15-20.

[3] H. Simons, *Personal Income Taxation* (Chicago: University of Chicago Press, 1938), p. 22.

[4] *Ibid.*, p. 23.

[5] A. C. Pigou, *A Study in Public Finance*, 3rd edition (London: Macmillan and Co., 1949), p. 43.

" equal," " proportional," and " least " or " minimum " variants, closely related " faculty " theories, " benefit " theories, " social-importance " theories, " surplus income " theories, etc.[6] All such concepts have been painstakingly criticized elsewhere and will not be labored here. It would not seem unfair to say that these theories can hardly be taken as adequate justifications for the principle of progression. The most widely used of the group—the variants of the sacrifice principle—are, of course, based firmly on utilitarian principles and thus necessitate interpersonal utility comparisons while ignoring the disturbing element that different individuals may have quite different capacities for enjoyment.[7] Furthermore, it is somewhat troublesome to its adherents that the mere acceptance (intuitively) of certain variants of the sacrifice theory is not a sufficient condition for justifying progression.[8]

Likewise, most of the remaining justifications mentioned, while often quite interesting and ingenious, are hardly acceptable to anyone who does not already feel, perhaps for some reason unknown even to himself, that some degree of progression is desirable.[9]

One of the most forthright justifications for progressive taxation has been that it redistributes income, and, in fact, any discussion which does not recognize this fact is wholly inadequate. Many (including mostly socialist writers) have advocated progression almost solely on these grounds. While a defense of progression in these terms is quite easily bound up with utilitarian concepts of welfare, the whole issue might be as simply stated as it is by Simons, who rests his case for " drastic " progression, " on the ethical or aesthetic judgment that the prevailing distribution of wealth and income reveals a degree (and/or kind) of inequality which is distinctly evil or unlovely." [10]

Since the 1930's the principle of progression has clothed itself in a newer and seemingly more durable mantle of respectability based on concepts quite apart from ethical judgments and reliance upon personal intuition. This more

[6] See Blum and Kalven, *op. cit.*, and Elmer D. Fagan, " Recent and Contemporary Theories of Progressive Taxation," *Journal of Political Economy*, August 1938, reprinted in AEA *Readings in the Economics of Taxation* (Homewood, Illinois: Richard D. Irwin, Inc., 1959), pp. 19-53.

[7] Many other objections are common, including the fact that hedonism is wholly introspective and subjective reactions are immeasurable.

[8] The acceptance of minimum sacrifice necessarily justifies progression, but under the " equal " and " proportional " variants a curve of diminishing marginal utility of money is not in itself sufficient. See Pigou, *op. cit.*, pp. 85-93, and Blum and Kalven, *op. cit.*, pp. 42-45, which contains a number of references.

[9] Groves suggests the best defense for progression is that approach, " often associated with Adolph Wagner though more sharply conceived and phrased by Elmer Fagan . . . which is to consider progressive taxation in terms of its social, political, and economic effects." See Harold M. Groves, " Toward A Social Theory of Progressive Taxation," *National Tax Journal*, March, 1956, p. 29. Thus, the problem becomes one of weighing tax alternatives in terms of the *social* significance of income. He suggests the use of such " widely accepted national objectives " as real income, minimum fluctuations, adequate revenue, political stability, international independence or security, elimination of extreme want, and mitigation of social disorders (p. 31). Presumably, after much careful deliberation and the weighing of these factors (unfortunately, with some unknown set of weights), one might decide that progression is not warranted. This approach to progression appears quite reasonable.

[10] Simons, *op. cit.*, pp. 18-19.

For one of the best *attacks* on income redistribution, see D. M. Wright, " Income Redistribution Reconsidered," *Income, Employment, and Public Policy* (New York: W. W. Norton and Co., 1948), pp. 159-176. In this article Wright quickly eliminates the " economic " arguments for redistribution (which he has covered elsewhere) and attacks the question on the basis that arguments for redistribution should be formed in terms of reform and political philosophy.

sophisticated justification is that progression aids in maintaining a high degree of economic stability and a high level of national income. Actually, there are two rather distinct notions involved. The first concerns the concept of automatic or built-in-stability, in which the virtue of a large degree of progression is to make for a great degree of instability of tax collections, thus automatically causing budget deficits in depression and surpluses in boom periods. While automatic stability is particularly favored by those who wish to minimize the range of discretionary government action, most economists recognize some desirable effects in offsetting short-run, less severe, changes in economic activity.[11] However, few economists feel that automatic stabilizers are by themselves a strong enough counter-cyclical weapon, and the degree of built-in-stability is not considered sufficient to counterbalance upheavals of major proportions.[12]

[11] Some of the standard references on automatic flexibility include: C E D, *The Stabilizing Budget Policy, What It Is and How It Works* (New York, 1947); Milton Friedman, "A Monetary and Fiscal Framework for Economic Stability," *American Economic Review*, June, 1948, pp. 245-264, reprinted in AEA *Readings in Monetary Theory*; A. Hart, *Money, Debt, and Economic Activity*, 2nd. Edition (New York: Prentice-Hall, 1953) Chapters 27 and 28; E. C. Brown, "The Static Theory of Automatic Fiscal Stabilization," *Journal of Political Economy*, 1955, pp. 427-41; and R. E. Slitor, "The Measurement of Progressivity and Built-in Flexibility," *Quarterly Journal of Economics*, February, 1948, pp. 309-14.

[12] See, for example, R. A. Musgrave and M. H. Miller, "Built-in-Flexibility," *American Economic Review*, March, 1948, pp. 122-128, reprinted in AEA *Readings in Fiscal Policy*, Alvin H. Hansen, *Monetary Theory and Full Employment* (New York: McGraw-Hill, 1949), pp. 177-180.

Clement states (p. 313), "An intuitively compiled weighted average of economic opinion on the efficacy of the existing battery of automatic stabilizers might be the following: the automatic stabilization features of the current fiscal system cannot be relied upon alone to dependably stabilize the economy. They are capable, certainly, of reducing the amplitude of the relatively mild swings in economic activity, they might conceivably provide a floor and a ceiling to these fluctuations, but in no event can they initiate an actual reversal of cumulative movements." M. O. Clement, "The Concept of Automatic Stabilizers," *Southern Economic Journal*, January, 1959, pp. 303-314.

Income Redistribution and Consumer Spending

Perhaps a more important justification of progression is one that is directly dependent upon the effect of progression in redistributing income, although in this case redistribution is not desired in itself, but for its effect in stimulating a higher level of consumer spending (and income). This argument is in no way dependent upon the incurring of government deficits and surpluses, and a balanced budget should be assumed for clarity. This defense of progression via income redistribution is one that evolved from the Keynesian-inspired notion that unemployment arises when aggregate demand is inadequate and that the pursuit of egalitarian objectives can increase real income and employment through shifting the consumption function. Thus, as Streeten remarked, the Keynesian theory strengthened the utilitarian tradition by resolving a moral dilemma. While formerly it had been generally held that a more egalitarian distribution of income would increase welfare, inequality was nevertheless felt necessary to produce sufficient savings for investment and economic progress; Keynes, however, showed that income redistribution is actually desirable for the reason that, in the short run at least, it increases "progress."[13]

In Keynes' discussion of the consumption function he enumerated vari-

[13] P. Streeten, "Keynes and The Classical Tradition," in Kurihara (ed.), *Post-Keynesian Economics* (New Brunswick: Rutgers University Press, 1954), pp. 345-364.

ous " subjective " factors that determine the normal slope and position of the function, and these he regarded as quite stable. However, he explicitly recognized six " objective " factors that can cause shifts in the consumption function, one of these being changes in fiscal policy, which includes income redistribution.[14] In another place he pointed out the economic rationale for a reduction in income inequality.

> Thus our argument leads towards the conclusion that in contemporary conditions the growth of wealth, so far from being dependent on the abstinence of the rich, as is commonly supposed, is more likely to be impeded by it. One of the chief social justifications of great inequality of wealth is, therefore removed.[15]

The argument has been applied with various degrees of enthusiasm by " Keynesians " — for example, Hansen apparently approved the idea that the modern trend toward the welfare state, financed largely by progressive taxation, shifts the consumption function upward,[16] and Joan Robinson contended that the most important determinant of the demand for consumption goods is the distribution of income.[17] Similar statements abound in the literature, and further references hardly appear necessary.

Keynes, Hansen, and Robinson were primarily concerned with a depressed and chronically stagnated economy. If stagnation presents a permanent problem, means of raising the level of the consumption function become extremely important. But if such is not the case—and apparently it is not—progressive taxation aims at solving a problem which does not exist. Why not advocate regressive taxation for a fully employed economy in which the major problem is inflation? At *best*, then, the " Keynesian " defense of progression can no longer be more than a partial one, i.e. progressive taxation is useful in hastening recovery from temporary depressions.

At first glance, the argument that income redistribution (of the right kind) will raise the consumption function seems perfectly sound.[18] Since higher income groups have a lower average propensity to consume than do lower income groups (a common sense proposition which has been substantiated by post-Keynesian budget studies), it would seem that a movement of spending units toward the over-all average should increase the consumption of the lower income groups by a greater amount than the decrease in the consumption of the higher income groups. But such is not necessarily true, as the effects of income redistribution depend upon the *marginal*

[14] J. M. Keynes, *The General Theory of Employment, Interest, and Money* (New York: Harcourt, Brace, and Company, 1936), pp. 94-95.

[15] *Ibid.*, p. 373. While it is probable that Keynes (and others) had in mind the distribution of income among productive factors in the classical sense, it is quite meaningful and reasonable to approach the subject in the Lorenz-curve sense—as is generally done in this paper. Distribution in the latter sense is particularly useful in terms of public policy.

[16] Alvin Hansen, *A Guide to Keynes* (New York: McGraw-Hill, 1953), p. 83.

[17] Joan Robinson, *The Problem of Full Employment*, p. 3, quoted in K. K. Kurihara, *An Introduction to Keynesian Dynamics* (New York: Columbia University Press, 1956), pp. 37-38.

[18] It is well to keep in mind the distinction between an " initial " change in consumer spending resulting from income redistribution and the total effect which includes secondary or multiplier effects. One has in mind the total effect when discussing consumption functions.

Income redistribution implies that a given level of income is redistributed initially, but if consumer expenditures are raised in the process, the final result will be a higher level of total income.

propensities rather than the average propensities.[19]

A most obvious argument is that investment may well be discouraged in the process of redistribution. This involves the question of incentives. But even in addition to the detrimental effects on investment, it has become more widely believed in recent years that the probable effect of income redistribution on consumer spending can be (and has been) greatly overstated.[20] Several significant studies were made in the late 1940's which reflected some doubt as to the magnitude of changes in consumption expenditure that would result from even drastic redistribution. Perhaps the difficulties inherent in statistical data and the simplifying assumptions necessary in utilizing quantitative data have somewhat limited more general acceptance of such findings. Lubell, using data from the 1941 study of the Bureau of Labor Statistics and the Bureau of Home Economics, utilized a technique for hypothetically redistributing income by adjusting the average income for selected income brackets by moving them closer to the mean of the entire distribution by some given percentage of the difference between them and the mean. Even when all incomes were made equal (a maximum redistribution of 100 per cent), the result was a " mere " 4.1 per cent increase in aggregate consumption expenditure (in the unadjusted estimate).[21] Musgrave and Painter attempted to estimate the impact of alternative tax structures with respect to the initial changes in consumption and saving, their " most striking result " being the " relatively slight increase in consumption " obtained by utilizing " maximum progression " (which greatly surpassed any " feasible degree " of progression) instead of the " standard " case which roughly corresponded to the 1946 federal revenue structure. Such results were found to be largely explained by the circumstances that: (1) the bulk of taxable income is found in the middle and lower income groups, thus limiting

[19] While the importance of the marginal propensities is universally recognized, a simple example may still be in order. In the case of a simple linear consumption function, $C = a + bY$, where a is positive, the marginal propensity to consume (slope) is a constant while the average propensity to consume declines steadily as income increases. In this case income redistribution will make no change in total consumer expenditure.

Morgan's work at Michigan has led him to feel that the impact of changes in the distribution of income depends more upon which asset groups are affected than upon which income groups are affected. What is important is not the effect of policies on the distribution of income because the marginal propensity to consume does not seem to vary as much between income groups as between asset groups. Furthermore, cross-section data has also shown that individuals with fluctuating incomes have different average and marginal propensities to consume than do those with stable incomes. James Morgan, " The Motivations of Savers," in Heller, et. al. (eds.) *Savings in the Modern Economy* (Minneapolis: University of Minnesota Press, 1953), pp. 213-217.

[20] While a redistribution of income through taxation (and subsidy) which aids the " groups " with high marginal propensities to consume may be held to increase the income of the community as a whole, an interesting question concerns whether the group that is taxed will ever be fully compensated for the loss of income from the tax payments. Metzler made several experiments of this possibility based on various simplifying assumptions concerning hypothetical marginal propensities to consume of " taxed " (low marginal propensity), " subsidized " (high marginal propensity), and " intermediate " groups. In general, he felt that such a possibility is quite unlikely. On his assumptions of various homogeneous groups, a marginal propensity to consume of greater than unity for the low income group is a necessary, though not sufficient, condition for a net benefit to accrue to the " taxed " group. Lloyd A. Metzler, " Effects of Income Redistribution," *Review of Economic Statistics*, February, 1943, pp. 49-57.

[21] Harold Lubell, " Effects of Income Redistribution on Consumers' Expenditures," *American Economic Review*, March, 1947, pp. 157-170, and Lubell's " Correction " and J. M. Clark's " Note on Income Redistribution and Investment," December, 1947, pp. 930-931.

the feasible range of burden transfer; (2) differences in the marginal propensity to consume at various income levels are "less than is frequently assumed;" and (3) the "standard" revenue structure was already fairly progressive.[22]

Post-Keynesian Consumption Functions

Theoretical interest in the Keynesian system prompted considerable empirical work and, in particular, a great number of investigations of the nature of the consumption function. Such studies have raised considerable doubt as to the effects of income redistribution on aggregate consumption and saving, and, it seems to the author, such studies have not as yet received quite the emphasis that they merit from students of public finance.

Early post-Keynesian studies, based both on time series and on budget data, appeared to confirm Keynes' simple hypothesis concerning the functional relationship of consumption and income.[23] However, the Kuznets data showed that since 1899 there had been no appreciable change in the percentage of income saved, and the later, more elaborate studies of Goldsmith, who employed slightly different definitions of saving, substantiated the accuracy of a long run constancy of the savings-income ratio.[24] (Goldsmith's computations cover the period 1897-1949.) The apparent incompatibility of evidence led to a number of more complex hypotheses which attempted to reconcile budget data evidence with the long run constancy of the consumption function. Many economists, using the "orthodox" approach, assumed consumption to be roughly a linear function of disposable income, with a constant term, and the absence of any long run increases in the savings-income ratio could be explained by a secular rise in the constant term owing to such factors as a trend to urbanization, income redistribution, and the introduction of new products.[25]

In his study of aggregate consumption functions, Ferber found that, by 1950, nearly 100 aggregate functions had been fitted to data for the United States, out of which he picked seventeen

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[22] Richard A. Musgrave and Mary S. Painter, "The Impact of Alternative Tax Structures on Personal Consumption and Saving," *Quarterly Journal of Economics*, August, 1948, pp. 475-499.

See also the article by Carl Shoup, "Taxation and Fiscal Policy," Millikan (ed.), *Income Stabilization for a Developing Democracy* (New Haven: Yale University Press, 1953), pp. 269-277, for a sketch of earlier estimates of the effects of various kinds of taxation on consumption and saving. The works of Kaldor, Goode, and Bergson are not always directly relevant to the specific discussion here, and in Shoup's words, "the[ir] conclusions probably have too large a margin of error to be very useful in choosing among alternative fiscal policies in practice." (p. 268)

Among other significant works concerning estimates of the distribution of tax burdens, see the various articles and exchanges by Musgrave, et al., and Rufus S. Tucker in the 1951-52 *National Tax Journals* and in the *Proceedings of the Forty-Fifth Annual Conference of the National Tax Association, 1953*.

[23] Keynes argued that current consumption expenditure is a highly dependable and stable function of current income—both measured in terms of wage-units. The famous "psychological law" held, in effect, that the value of the marginal propensity to consume is positive and lies between 0 and 1, both for the individual and for the community. Somewhat *less definitely*, he felt that the marginal propensity to consume is less than the average propensity to consume, and that as real income increases the average propensity to consume falls. The latter ideas are often considered "Keynesian assumptions" although they are not necessary to the "fundamental psychological law." Keynes, *op. cit.*, especially Book III.

[24] S. Kuznets, *Uses of National Income in Peace and War* (New York: National Bureau of Economic Research, 1942), R. Goldsmith, *A Study of Savings in the United States*, 3 vols. (Princeton: Princeton University Press, 1955).

[25] See, for example, A. Smithies, "Forecasting Postwar Demand," *Econometrica*, January, 1945, pp. 1-14.

for further study.[26] Most studies were statistical in nature, proceeding from a preconceived theory to an actual construction of a consumption function and then providing numerical estimates of the parameters of that function. The functions he selected as representative usually employed slightly different forms as to what he considered the three major variables — price, population, and income. Two "promising variables," among a multitude of others, were corporate savings (which are, of course, a part of total private savings) and liquid assets.

While from a theoretical point of view it is quite reasonable to insert some measure of income distribution into an aggregate consumption function, it is quite interesting to note that of all the functions studied by Ferber only that of Staehle (which is based on German data for 1928-1934) explicitly allowed for income distribution effects.[27] Staehle, in what is one of the earliest studies of the consumption function (1937), attempted to show, by making a multiple regression analysis of the aggregate propensity to consume of German wage earners on a measure of income inequality and on an index of their labor income deflated by a wage index, that even in the short run income inequality is not constant and that it has a substantial effect on the propensity to consume.

On the other hand, later studies did not seem to substantiate this conclusion regarding the effects of income redistribution. For example, Polak, using a measure of income distribution among other variables for the period 1919-1932 in the United States, derived a number of regression equations and found that those including the measure of income distribution increased the coefficient of determination in all cases.[28] However, the negative sign of this measure contradicted one of his basic *a priori* conditions, the familiar idea that the propensity to consume should increase as the distribution of income becomes more equal. Therefore, he rejected these equations. Ferber reported that Mosak, in the only other empirical evaluation of the influence of income distribution surveyed by Ferber, advanced the idea that this factor exerts its main effect in determining the distribution of expenditures among different commodities rather than in affecting the absolute amount of consumption.[29]

Ferber concluded that the relevance of income distribution was far from clear-cut and remained a matter for further study. In short, there seemed to be a bit of evidence for almost every position one might wish to take.

Since 1950 a great many additional studies have appeared, perhaps the best known being those of Tobin, Modigliani-Brumberg, and Friedman.[30] None of

[26] R. Ferber, *A Study of Aggregate Consumption Functions*, Technical Paper 8 (New York: National Bureau of Economic Research, 1953).

[27] H. Staehle, "Short-Period Variations in the Distribution of Incomes," *Review of Economic Statistics*, August, 1937, pp. 133-143.

[28] J. J. Polak, "Fluctuations in United States Consumption, 1919-1932," *Review of Economic Statistics*, February, 1939, pp. 1-12. See Ferber, *op. cit.*, pp. 20-21.

[29] Ferber, *op. cit.*, p. 21, J. L. Mosak, *Changes in Income Distribution During the Great Depression* (New York: National Bureau of Economic Research, 1946).

[30] James Tobin, "Relative Income, Absolute Income, and Savings," *Money, Trade and Economic Growth*, pp. 135-156; F. Modigliani and R. Brumberg, "Utility Analysis and the Consumption Function: An Interpretation of Cross-Section Data," in Kurihara (ed.), *Post-Keynesian Economics*, pp. 383-436; Milton Friedman, *A Theory of the Consumption Function* (Princeton: National Bureau of Economic Research, 1957).

their functions explicitly contains an income distribution factor — although this does not indicate that such a factor cannot be accorded great significance within the complete logical framework of a particular " theory." For example, while neither Duesenberry nor Modigliani (earlier study) — both of whom are covered in Ferber's survey—incorporated at income distribution factor in their functions, rationalization of their " relative income hypothesis " brings into sharp focus the possible effects of income redistribution.[31] Likewise, Friedman's recent study, in which he formulates the " permanent income hypothesis," contains strong implications for public policy in this respect.

Duesenberry's formulation of the consumption function is quite well known. Briefly, he held that the long-run average propensity to save is independent of the income level, or that savings remain a constant proportion of income as income rises over time. The function is non-reversible, as the ratio of consumption (savings) to personal disposable income is expressed as a function of the ratio of current income to the highest level of income previously reached, thus yielding a " ratchet " effect. This hypothesis is reconciled with the evidence from budget studies by arguing that the proportion of its income that a spending unit saves is determined not by the absolute level of that income, but rather by its relative position in the income distribution.

Duesenberry argued that the strength of impulses to increase expenditure depends entirely on the ratio of an individual's expenditures to the expenditures of those with whom he associates. One reason for this is the " demonstration effect," i.e. when an individual's associates spend more, that individual comes into contact with better quality goods and thus becomes dissatisfied with his own cheaper purchases. Also, a high standard of living is an end in itself, and it is judged by comparison with the living standards of others. The essence of the matter is that an individual's propensity to save can be regarded as a rising function of his percentile position in the income distribution; yet over time, with an increasing income and no reshuffling of the " percentile position " of different spenders, everyone will increase his consumption expenditure in such a manner as to maintain his previous savings ratio. The acceptance of such a thesis means that the simple addition of individual consumption schedules to arrive at a collective schedule is not a valid procedure. The theory is based squarely on certain sociological phenomena, in particular that consumer preferences are *interdependent*, and not independent, when time is taken into account.

The acceptance of this sociological interpretation of consumer behavior has grave consequences for income redistribution. For example, if income is redistributed with a net gain for the lower income groups, these groups may consider this an increase in their relative position, and, therefore, save a greater proportion of their now higher incomes. On the other hand, the higher income groups, although suffering a loss in their absolute position, still remain in the same relative position and maintain the same savings-income ratio. Thus, in this case, there is actually a higher propensity to

[31] James Duesenberry, *Income, Saving, and the Theory of Consumer Behavior* (Cambridge: Harvard University Press, 1949); F. Modigliani, " Fluctuations in the Savings-Income Ratio: A Problem in Economic Forecasting," Part V, Vol. II, *Studies in Income and Wealth* (New York: National Bureau of Economic Research, 1949).

save in the aggregate.

H. G. Johnson points out that the above conclusion does not follow unambiguously from the assumption of interdependence of preferences, but rather depends upon the implicit assumption about the precise nature of that interdependence.[32] Some assumption must be made about the manner in which a change in the consumption of any individual group causes the rest of the economy to change its consumption as a result (solely) of interdependence, and Johnson assumes that there are two contrasted types of interdependence. Thus, aggregate savings may either increase or decrease, depending upon which type of interdependence prevails. The first type may be termed "keeping up with the Joneses" or "emulation," where the consumer places a relatively high valuation on consumption greater than his own; the second type is "keeping ahead of the Smiths," or "superiority," where the consumer is anxious to consume more and better goods than others with lower incomes and thus places a high valuation on consumption standards lower than his own. Johnson goes on to show that only in an economy where "emulation" dominates can redistribution of income from "rich" to "poor" lead to an increase in the aggregate savings-income ratio.[33]

The most important question concerns the extent to which such motivations actually affect consumer behavior. Our present state of knowledge is admittedly weak, but it does appear that the possible effects of interdependence cast considerable doubt upon the validity of a conscious policy of income redistribution to secure a higher level of consumption.

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[32] H. G. Johnson, "A Note on the Effect of Income Redistribution on Aggregate Consumption with Interdependent Preferences," *Economica*, August, 1951, pp. 295-297.

[33] Johnson holds that, according to Duesenberry, the satisfaction obtained by the i'th individual from consumption depends not on his absolute consumption, but on his relative consumption, or $\frac{C_i}{a_{ij}C_j}$ (where C_i is i's absolute consumption, C_j is the absolute consumption of the j'th individual and a_{ij} is a measure of the importance attached by the i'th individual to that quantity). In explaining either the secular constancy of the savings ratio or the fact that the percentage of income saved is greater the higher the individual's "percentile position," all the C_j's can be assumed either to remain constant or change in the same direction, so that the fraction is unambiguous and independent of the distribution of income. However, when income is redistributed, some of the C_j's will increase and others will decrease, so the effect on the individual's satisfaction will depend on the values of the a_{ij}'s. Thus, depending upon the relative values of the coefficients attached to the quantities of other individuals' consumption (which may either increase or decrease), aggregate savings may either increase or decrease.

In a later article, Johnson, employing the concepts of an "emulative society" and a "competitive society," analyzes income redistribution in more detail. H. G. Johnson, "The Effects of Income Redistribution on Aggregate Consumption with Interdependence of Consumers' Preferences," *Economica*, May, 1952, pp. 131-147. See also "The Macro-Economics of Income Redistribution," in Peacock (ed.) *Income Redistribution and Public Policy* (Oxford: Alden Press, 1954), pp. 19-40.

James and Beckerman have criticized Johnson's approach at length. They suggest his definitions tell nothing about how individuals actually behave and that his final solutions are only in terms of various assumptions about the total interdependence effect and its size relative to the (usual) income effect. These authors attempt to demonstrate that: (a) under a set of "fairly reasonable assumptions" about interdependence of consumer preferences, the effect of income redistribution is likely to be little different from the effect when interdependence is ignored; and (b) the number of postulates needed to arrive at any conclusion is so large that "until a vast increase in our knowledge of individual interdependence behavior is obtained, speculation about the total effects can only be deceptive." (p. 72) They conclude that we should not allow any theoretical analysis of interdependence, given our level of knowledge, to modify the usual public policy conclusions. S. F. James and W. Beckerman, "Interdependence of Consumer Preferences in the Theory of Income Redistribution," *Economic Journal*, March, 1953, pp. 70-83.

ERRATUM

The following should be added to page 177 of the June, 1960 issue of the *Journal*

The transitory components of consumption and income are assumed to be uncorrelated with each other and with the corresponding permanent components. Only changes in permanent income affect permanent consumption (given i, u, and w); households plan over a fairly long period on the basis of expected income and will not diverge from their plans because of unexpected income changes. The marginal propensity to consume out of transitory income is zero. As to the validity of budget studies, Friedman feels that they simply employ inappropriate concepts that reflect the strength of transitory forces.

Friedman holds that at all income levels planned (permanent) savings is the same fraction of planned (permanent) income. Therefore, inequality caused by permanent factors makes no difference as to the amount saved. But conversely, if inequality is attributable to transitory factors, and large transitory components reflect uncertainty, then the savings ratio will be affected. It is not the distribution of income *per se*, but rather uncertainty, that influences savings. What is favorable to a high consumption ratio is not equality, but certainty.

It should also be noted that the work of Modigliani and Brumberg leads to conclusions concerning income redistribution similar to those of Friedman in many respects.[36] Deviations of the savings ratio from a normal level are accounted for by the fact of short-term fluctuations in income around the basic earning capacity (permanent income) of the household, and because gradual changes in this basic capacity may cause accumulated savings (assets) to momentarily get " out of line " with current income and age.

[36] Modigliani and Brumberg, *op. cit.*, p. 430.

Conclusions

It should be apparent by now that there is considerable evidence—although admittedly quite varying and often contradictory—to support the view that income redistribution via progressive taxation may not stimulate consumption to any appreciable extent (if at all). First, it would take an extremely large degree of progression to accomplish any significant redistribution. That there is apt to be little difference between the marginal propensities to consume of high and low income groups is very important. Perhaps even more significant, budget data are likely to obscure the effects of redistribution which must take place over a period of time, and during which time interrelated consumer spending patterns are likely to change. Furthermore, the important distinction between permanent and transitory components of income and consumption is obscured by budget data.

What once appeared to offer the firmest support for progressive taxation now appears considerably weakened and quite inadequate. To no small degree the change in economic conditions is responsible. While our attack has been directed principally against the line of causation in the " high consumption level " argument, it should be mentioned that it has now become quite un-

settling to argue in these terms in view of our present concern with inflation and economic growth rather than with " depression " economics. Few adherents of progression appear to be ready to make the big leap consistency requires if one is really justifying progression solely in terms of its stimulating effect on consumer spending. On the other hand, those who have felt uneasy about a supposed conflict between the goals of more capital formation and more " distributional equity," may have *less* reason to be troubled by progression.

We are not purporting to argue against either progressive taxation of income redistribution, but only to point out in some detail that what once appeared to be the most sophisticated argument for progressive taxation is, perhaps, not very much more " sturdy " than its predecessors. In the final analysis, however " uneasy " may be the case for progression in terms of specific arguments investigated singularly, a more pragmatic approach which considers the effects of progression on the attainment of various desirable social goals—and not only economic goals — might yield the answer to reasonable men that some degree of progression is best under the given circumstances of a given society in a given period. Nothing more is really needed.

On a level apart from sociological complications are the findings of cross-section data that individuals with fluctuating incomes have higher average and marginal propensities to save than do those with stable incomes. Such a phenomenon is capable of various interpretations. M. Reid suggests that cross-section data that classifies families by the income of one year really classifies them by incomes that are not typical (forthcoming over any extended period of time).[34] Some families are very low (high) on the scale in contrast to their previous position and their expected position. Thus, any dissavings that occur during a particular year at the low incomes are in considerable part caused by the fact that families are below their usual position. Likewise, high savings often accrue to those who experience unexpectedly high incomes. She suggests that, if we could measure and then classify families by the permanent component of their incomes, we would probably discover that the same percentage of income is saved at all economic levels. With a change in income for a particular spending unit, there might be some lag in families increasing their expenditures so as to maintain a constant savings ratio, but this would be partly due to their not accepting the increased income as a real change in the permanent component.

Friedman has developed an elaborate theory of the consumption function on much the same basis—a difference between permanent and transitory components.[35] Friedman's hypothesis can be summarized in three fundamental equations:

$$C_p = k(i,u,w)\,Y_p$$
$$Y = Y_p + Y_t$$
$$C = C_p + C_t$$

(where subscripts p and t stand for permanent and transitory components, i is the rate of interest, w is the ratio of nonhuman wealth to income, and u represents a host of factors affecting the consumer unit's taste for current consumption versus accumulation of assets, and including the degree of uncertainty attached to the receipt of income).

The ratio of permanent consumption to permanent income (k) is independent of the size of permanent income, but depends upon i, u, and w—about which Friedman has little to say (in this particular book). To the extent these three factors "cancel out" over time, there will be a constant secular savings ratio.

[34] M. Reid, "Savings by Family Units in Consecutive Periods," in Heller, *op. cit.*, pp. 218-220.

[35] Friedman, *op. cit.*

CENSUS OF GOVERNMENTS — FOOTNOTES ON A SHOEHORN *

ALEK A. ROZENTAL

THE foreign student who pondered upon the *1957 Census of Governments* in a letter published in the June 1959 issue of the *National Tax Journal* may be interested in a few footnotes to that letter. In his communication the foreign correspondent apologizes, unnecessarily, for his simple analytical tools explaining that he travels light and has no resources for a more elaborate statistical analysis. The foreign scholar presumably comes from a tropical clime and, as likely as not, wears sandals. However, the oxford-shod Western student may be excused if he were to include a shoehorn in his wardrobe.

He will certainly need a shoehorn if he is interested in fitting the 1942 *Census* data to analytical purposes. The figures for 1942 are not quite comparable with the 1957 *Census* statistics, and yet they are the latest expenditure figures available of a scope and comprehensiveness approaching those of the present *Census of Governments.*

Armed with the shoehorn we propose to append a few footnotes that deal with state and local expenditures in the intercensal period, 1942-1957.

The 1942 Census of Governments

In spite of severe wartime shortages of manpower and inadequate funds provided by Congress, the *1942 Census of Governments* coverage of expenditure data was more comprehensive than in any preceding compilation. Nevertheless, the geographical area detail of the 1942 *Census* was limited, and data for a substantial number of non-reporting local governments were necessarily estimated.[1]

The information contained in the original *Census* compilation [2] was subsequently revised,[3] but the revised summary gave detailed functional breakdowns of expenditures, state by state, only for current operations. In order to make the 1942 expenditure data even roughly comparable with those of the 1957 *Census,* the figures for capital outlays and interest have to be combined with the revised figures for operations. This yields some awkward results. However, so long as undue emphasis is not attached to the absolute figures for each state, they are useful for analyzing the changes in state and local expenditures in the intercensal period.[4] Even so, it is

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[1] Cf. U. S. Department of Commerce, Bureau of the Census, *Historical Statistics on State and Local Government Finances, 1902-1953,* Washington, 1955, p. 2.

[2] Bureau of the Census, *Governmental Finances in the United States, 1942,* Washington, 1945.

[3] Bureau of the Census, *Revised Summary of State and Local Government Finances in 1942,* Washington, 1948.

[4] The following compares the information in the *Revised Summary, op. cit.* with the data given in Bureau of the Census, *Historical Summary of Govern-*

advisable to refrain from including the blanket category "other expenditure" from the analysis of the changes in functional distribution of expenditures, by states, in the period 1942-1957.[5]

Interstate Differences in Expenditures, 1942 and 1957

Students of state and local finances are struck by the wide range of per capita expenditures among the states. These differences in expenditures apply to the totals as well as to specific functions. Less well documented, perhaps, is the fact that interstate differences in expenditures tend to diminish over time. This was brought out in the pioneering study by Solomon Fabricant[6] and is further substantiated by the analysis of the 1957 *Census* data.

Total direct expenditures in 1942 ranged from $24 per capita in Arkansas to $136 in Nevada. In 1957, Nevada, still at the top, spent $368 per capita, and Arkansas, still at the bottom, spent $148 per capita. But the degree of dispersion among the 48 states (excluding District of Columbia) decreased for most of the functions performed by state and local governments.[7] These coefficients (semi-interquartile difference expressed as a percentage of the median) decreased in every category, except education and interest, where the increases were slight.[8]

This tendency can be measured by comparing the coefficients of variation in 1942 with those in 1957 (Table I).

TABLE I

COEFFICIENTS OF VARIATION OF STATE AND LOCAL EXPENDITURES PER CAPITA, BY FUNCTION, 1942 AND 1957 *

Function	Coefficients of Variation	
	1942	1957
Total Direct Expenditures	19.9	15.4
Education	17.2	17.3
Highways	27.9	21.8
Public Welfare	33.4	13.9
Health & Hospitals	33.0	19.5
Police	40.1	26.3
Fire Portection	57.8	36.9
Sanitation	55.6	31.3
General Control	23.3	18.1
Interest	31.7	33.5

* Coefficient of variation is the semi-interquartile range expressed as a proportion of the median.

Sources: U.S. Department of Commerce, Bureau of the Census, *Governmental Finances in the United States, 1942*, Washington, 1945; *Revised Summary of State and Local Government Finances in 1942*, Washington, 1948; *State and Local Government Finances in 1957*, Advance Release No. 8, Washington, 1959.

In both 1942 and 1957 states differed among themselves most pronouncedly in expenditures on police, fire protection

mental Finances in the United States, Washington, 1959.

All States	*Historical Summary (millions)*	*Revised Summary (millions)*
Current operation	$7,057	$7,216
Capital outlay	1,477	1,016
Interest on debt	706	516
Total direct expenditures	$9,240	$8,748

About half of the difference ($236 million) is accounted for by exclusion from the 1942 figures of "housing and community development" outlays and the rest by other statistical and conceptual discrepancies.

[5] The efforts of the author to make the 1942 data comparable with the 1957 figures have now been superseded by U.S. Bureau of the Census: *State and Local Government Finances in 1942 and 1957* (G-SS-No. 43), Washington, D. C., December, 1959. These figures were published too late to be considered here but a spot check suggests that their inclusion would not materially affect the findings of this paper.

[6] S. Fabricant, *The Trend of Government Activity in the United States Since 1900*, New York, 1952, especially pp. 112 and ff.

[7] The necessity to combine expenditures of *all* local units of governments is apparent when it is recalled that state expenditures as per cent of total state and local expenditures vary widely from state to state.

[8] In the Fabricant study coefficients of variation for 1903 were compared with those for 1942 (operating expenditures only). A decrease was noted for every function, without exception. *Op. cit.*, p. 114.

and sanitation. These are functions that are performed predominantly by local government units. The dispersion in both years was less pronounced with respect to education, highways, public welfare, health and hospitals where it is the state government that typically assumes the main responsibility.

It must be borne in mind that coefficients of variation measure the *degree* of difference among states. Absolute differences in the actual amounts spent do not necessarily parallel the decline of the interstate differences in relation to the average (median) value. Table II shows that between 1942 and 1957, absolute differences increased for education, highways, health, hospitals and sanitation, but decreased for the other five functions.[9]

In Table II the change in absolute differences is also expressed as a percentage change and is compared with the coefficients of variation for the ratio of 1957 to 1942 expenditures. These ratios are obtained by dividing the 1957 expenditures by the 1942 expenditures by functions and by states. Thus the ratios provide a crude measure of the uneven rate of growth of the various functions. The higher figure for public welfare (52 per cent) than for education (13 per cent), for example, suggests how much more pronounced the levelling-out process has been in the public welfare area.

TABLE II

STATE AND LOCAL PER CAPITA EXPENDITURES BY FUNCTION, 1942 AND 1957. ABSOLUTE INTERQUARTILE DIFFERENCES AND COEFFICIENTS OF VARIATION IN THE RATIO OF 1957 TO 1942 EXPENDITURES

Function	Absolute * Interquartile Difference 1957 (in dollars)	Absolute * Interquartile Difference 1942 (in dollars)	Percentage Increase (+) or decrease (–) in absolute interquartile differences	Coefficients of Variation Ratio of 1957 and 1942 (per cent)
Total Direct	64.63	54.10	+19.5	14.7
Education	24.97	13.72	+82.0	12.8
Highways	19.48	14.07	+38.5	13.0
Public Welfare	4.40	12.27	–64.1	54.4
Health & Hospitals	5.53	5.10	+ 8.4	23.6
Police	2.94	3.52	–16.5	16.1
Fire Protection	2.21	2.55	–13.3	15.0
Sanitation	3.68	2.00	+84.0	33.7
General Control	3.16	4.44	–28.2	9.4
Interest	2.87	3.95	–27.3	36.2

* Interquartile differences are in constant 1954 prices obtained by dividing current expenditures by the implicit state and local government expenditures deflators as given in the U.S. Department of Commerce, *National Income and Output*, Washington, 1959, pp. 221.

Source: See Table I.

Interstate Similarities in Functional Distribution of Expenditures

While the disparity in the level of expenditures among states is striking in spite of the relative decline over time, sight should not be lost of the fact that all states follow a pattern of expenditures that has much in common. One indication of this similarity may be

[9] Between 1903 and 1942 only general control and school expenditures show a decline in the absolute difference. Fabricant, *op. cit.*, p. 121.

gleaned from Table III which shows that the relative ranking of the median values is representative of the entire distribution. That is, in the intercensal period, states increased their expenditures *most* on broadly the same functions and increased them *least* on other functions common to all 48 states. Thus, most states increased their expenditures on sanitation, education, health and hospitals much faster than those on interest and general control. This is shown in

TABLE III

STATE AND LOCAL EXPENDITURES PER CAPITA IN CONSTANT PRICES RATIOS OF 1957 TO 1942 BY FUNCTION

(Ordered according to median values)

	1st Quartile Value	Median *	3rd Quartile Value
Sanitation	2.10	2.58	3.84
Education	1.75	1.96	2.25
Health & Hospitals	1.61	1.82	2.47
Highways	1.55	1.77	2.02
Police	1.17	1.37	1.62
Fire Protection ...	1.17	1.33	1.57
Public Welfare ...	.73	.90	1.71
General Control ..	.80	.85	.96
Interest	.47	.69	.98

* Median values are the mid-points of an array of per capita expenditures of the 48 states in 1957, divided by those in 1942. They are *not* the ratio of median expenditures in 1957 to the median expenditures for 1942. This holds for quartile values as well.

Source: See Table I.

greater detail in Table IV. In that table the ratios of 1957 to 1942 expenditures for each state are ranked according to function. For example, in the case of Alabama, the greatest growth in state and local expenditures between 1942 and 1957 occurred in public welfare, the least in interest. The growth of education expenditures in Alabama ranked fourth among the nine functions considered.

It may be of interest to note the pattern of change in the expenditures on public welfare. This is the function where, by 1957, the degree of disparity among states, as measured by the coefficient of variation, was the smallest. Similarly, the percentage decrease in the absolute interquartile difference was, from 1942 to 1957, the greatest in the case of public welfare. It is again public welfare that, in Table V, shows the most marked deviations from the predominant pattern of functional distribution of expenditures over time. While the average rank, for the 48 states, puts public welfare in seventh place among the nine functions considered, eight states show the expenditures on public welfare among the first three functions in order of growth within the intercensal period.

The information presented in the tables above raises a number of challenging questions. Why did the disparity among states increase for education and interest even though it decreased for every other function? Why do absolute differences increase for some functions and decrease for others? What accounts for the differential pattern of growth in the functional distribution of expenditures? The answers to these questions will not even be attempted here. The foreign student will have to do some more serious pondering and hope that other studies will throw some light on these matters.

Relation of Expenditures to Personal Incomes

Everyone who has ever worked with state and local financial statistics has invariably pointed out the relationship that exists between personal per capita income and per capita expenditures.

TABLE 4

CHANGES IN FUNCTIONAL DISTRIBUTION IN STATE AND LOCAL EXPENDITURES, PER CAPITA, 1942-1957, BY STATES AND BY RANK OF RATIO

	Education	Highway	Public Welfare	Hlth & Hosp.	Police	Fire	Sanitation	Gen'l Control	Interest
Alabama	4	3	1	8	6	5	2	7	9
Arizona	2	4	8	3	5	6	1	7	9
Arkansas	5	3	2	4	7	6	1	8	9
California	2	4	3	5	7	6	1	8	9
Colorado	1	3	7	5	4	6	2	8	9
Connecticut	3	1	8	4	7	6	2	9	5
Delaware	1	2	5	6	7	9	4	8	3
Florida	3	4	5	2	6	7	1	8	9
Georgia	3	5	2	1	6	7	4	8	9
Idaho	3	6	8	1	5	4	2	7	9
Illinois	4	1	9	2	5	6	3	8	7
Indiana	6	8	9	2	4	5	1	7	3
Iowa	2	3	7	6	4	5	1	8	9
Kansas	4	3	9	2	5	7	1	8	6
Kentucky	3	6	4	2	5	7	1	9	8
Louisiana	2	4	1	5	7	6	3	8	9
Maine	2	5	9	3	6	4	1	8	7
Maryland	1	2	9	3	5	6	4	8	7
Massachusetts	4	1	8	3	7	6	5	9	2
Michigan	1	3	8	4	5	6	2	7	9
Minnesota	3	4	9	1	6	5	2	7	8
Mississippi	4	6	1	2	3	7	5	8	9
Missouri	3	2	6	4	7	5	1	8	9
Montana	2	4	9	3	5	6	1	8	7
Nebraska	3	4	9	1	5	6	2	8	7
Nevada	5	8	9	4	6	2	1	7	3
New Hampshire	3	4	9	2	6	7	1	8	5
New Jersey	3	2	7	5	4	6	1	8	9
New Mexico	5	7	6	3	4	2		8	9
New York	2	1	9	3	5	6	4	7	8
North Carolina	3	4	5	2	6	7	1	8	9
North Dakota	6	4	8	3	7	2	1	5	9
Ohio	2	4	3	9	5	6	1	7	8
Oklahoma	4	2	6	3	7	5	1	9	8
Oregon	2	4	8	3	5	7	1	5	9
Pennsylvania	3	4	9	2	5	6	1	7	8
Rhode Island	3	1	4	2	7	6	5	8	9
South Carolina	2	8	3	4	5	6	1	7	9
South Dakota	3	1	8	6	4	5	2	7	9
Tennessee	2	4	5	3	6	7	1	8	9
Texas	3	5	6	2	4	7	1	8	9
Utah	2	4	9	3	6	5	1	7	8
Vermont	1	4	6	3	2	5	7	8	9
Virginia	2	4	7	3	5	6	1	9	8
Washington	4	3	9	1	5	6	2	8	7
West Virginia	2	8	7	4	5	3	1	9	6
Wisconsin	4	5	9	3	2	6	1	7	8
Wyoming	3	4	7	2	6	5	1	8	9
Average Rank	2.9	3.9	6.6	3.3	5.4	5.7	1.9	7.7	7.8

Source: See Table I.

Indeed the June letter to the *Journal* devotes much space to the tracing of this relationship. In Table V this relationship is measured by the Spearman rank correlation coefficients.[10]

The correlation between personal income and expenditures is measured in 1942, 1957 and the ratio of 1957 to 1942 expenditures. Noteworthy is the fact that with the single exception of interest, the relationship of personal income to expenditure functions is less striking in 1957 than in 1942. In the case of interest expenditures, the correlation coefficients in 1942 and in the ratio of 1957 to 1942 are negative, even though the coefficient in 1957 is positive. But even in 1942 the correlation of personal income and expenditure is not perfect, suggesting, of course, the existence of other factors that determine the level of state and local expenditures.

Again, this paper does not attempt to relate state and local expenditures to variables other than personal income. It says nothing about the possibility that per capita personal income may itself be influenced, to some extent at least, by the rate and the level of expenditures. Nor does it comment on the behavior of interest expenditures over time and the change in sign of its correlation coefficient between 1942 and 1957.

The shoehorn is a woefully inadequate tool with which to approach these complex tasks. The foreign student must wait until such time as his country is able to import an electronic computer.

[10] The rank correlation coefficient is calculated from the formula $R = 1 - \frac{6\Sigma d^2}{N^3 - N}$ where d measures the difference between the rank of the state with respect to personal income and its rank with respect to an expenditure category. N is 48, the number of states ranked.

TABLE V

RELATION BETWEEN PER CAPITA PERSONAL INCOME AND PER CAPITA STATE AND LOCAL EXPENDITURES, BY FUNCTION, IN 1942, 1957 AND RATIO OF 1957 TO 1942

Function	1942 *	1957 **	Ratio of 1957 to 1942 ***
	Spearman's Rank Correlation Coefficients		
Total Direct Expenditures	.80	.58	.67
Education	.67	.50	.63
Highways	.28	.26	.36
Public Welfare	.61	.004	.68
Health and Hospitals	.84	.70	.55
Police	.85	.86	.69
Fire Protection	.86	.79	.59
Sanitation	.75	.68	.51
General Control	.79	.59	.37
Interest	−.08	.61	−.70

* Personal Income in 1938-42 correlated with state and local expenditures in 1942.

** Personal Income in 1954-57 correlated with state and local expenditures in 1957.

*** Ratio of Personal Income in 1954-57 over personal income in 1939-42 correlated with the ratio of state and local expenditures in 1957 over state and local expenditures in 1942.

Source: Expenditure data from sources cited in Table I. Personal income data from U. S. Department of Commerce, *Personal Income by States Since 1929*, Washington, 1956 and *Survey of Current Business*, August, 1958.

COMPARING TAXES IN A COMMON MARKET: COMMENT

JOHN D. STRASMA *

COMPARISONS of tax costs for existing domestic firms are essential bases for " harmonization " measures in new comon markets, and John Moss has made a worthy contribution with his recent analysis.[1] I hope he will follow this effort with a study of the comparative tax and subsidy position of new foreign branches of firms owned and managed from other countries, both outside the European Economic Community and in other member nations. The treatment of such outside investments may be at least as important as comparative taxation of domestic firms to the success of an economic union, especially in the case of areas less heavily industrialized now than is the EEC. An example might be the proposed free trade zone uniting the " Southern Seven " nations of Latin America. In this area there is some fear that one or more governments will offer substantial tax and subsidy inducements in an effort to attract to their soil all of the new plants that will be erected by foreign interests specifically to sell in the new, protected market to be created. Some type of " fair practices " code, specifying the extent of such competition permissible, would seem to be an essential part of treaty arrangements for a common market, and an accurate comparison of present practices is an essential starting point.

When the work is extended, however, I hope it will be possible to set up hypothetical firms more nearly typical than those used in the first article. I am particularly concerned about an unfortunate assumption, to whose bias Moss himself calls our attention, which casts considerable doubt on his findings as to comparative tax costs in the European Economic Community. Moss writes that his assumed $2,000 annual wage average per employee is " probably high by at least twenty per cent for most EEC countries. . . ." [2] He excuses this discrepancy by saying that his hypothetical firms, by paying such good wages, will enjoy good public and labor relations, and yet they could cut wages if required by their competition.[3] Since our concern is the influence of taxation in an increasingly competitive economic union, it would seem more reasonable to assume realistic average wages in the first place, saying that firms not facing much competition could pay more than the average if they desired, thus gaining in the public esteem, etc.

Let us interpret Moss' estimate that

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[1] John Moss, " Tax Burdens in Common Market Countries," *National Tax Journal*, Vol. XII, Sept. 1959, pp. 216-231.

[2] Moss, p. 223. He adds that no recent wage studies are available.

[3] Moss, p. 223. It appears that this figure was chosen simply to make all major items round numbers—$2,000,000 assets, $2,000 annual wages for 200 workers, etc., were his assumptions.

the wage is 20 per cent too high as meaning that $2,000 is 120 per cent of the true annual wage average. The correct assumption should then be $1667 per worker per year, and the payroll for each firm would be $333,000 per year instead of $400,000, a $67,000 difference.

Payroll taxes paid by employers vary greatly among the six member nations of the EEC, from 1.2 per cent in Luxembourg to 50 per cent in France and Italy.[4] By multiplying the $67,000 payroll difference by the respective rates, we find that the hypothetical firms would pay less taxes, by $804 in Luxembourg, $5,360 in Germany, $13,400 in the Netherlands, $23,450 in Belgium, and $33,500 in France and in Italy. The analysis of the position of an individual worker in the six nations should also be corrected.[5]

To be sure, Moss nowhere calls his hypothetical firms "typical." He concedes that they are based on large, publicly-held firms, many of which are located in the USA or in other nations outside the EEC.[6] Other tax problems which it was not possible to consider in his article make any quantitative estimates of tax differentials dubious at best. However, his assumption of unusually high payrolls for these firms affects his findings, and the correction of this bias reduces considerably the tax differences he finds.

Moss suggests that from a tax point of view, Luxembourg is probably an attractive location, Germany and the Benelux nations less so, and Italy and especially France very unattractive comparatively as industrial locations.[7] For his Corporation A, for example, the per cent of profits available for reserves (before accounting for turnover tax) was shown as 52.4 per cent in Luxembourg, 38.4 and 39.8 per cent respectively in the Netherlands and Belgium, 30.6 per cent in Germany, and 27.6 per cent in Italy and 23.6 per cent in France.[8]

France and Italy, which have relatively high total taxes, have very high payroll tax rates. The total taxes calculated by Moss for these nations are high by about $33,500 as a result of the payroll assumption, less an allowance for the fact that payroll taxes are deductible in calculating some income taxes. If this sum is restored to profits for locations in France and Italy, these locations may become as attractive as Germany, where the error was only $5,360 because payroll tax rates are lower. Likewise, Belgium and the Netherlands approach Luxembourg in tax attractiveness. The result seems to be a rather clear distinction between the Benelux nations as relatively low-tax sites, and France, Germany and Italy as relatively high-tax sites, without important differences within each trio. If the assumed average wage were cut further, France and Italy would improve to the point that Germany would be the least attractive location from a tax viewpoint. This somewhat surprising conclusion indicates the importance of accurate payroll assumptions in tax comparisons.

[4] Others are Germany, 8 per cent; Netherlands, 20 per cent; Belgium, 35 per cent. Moss, p. 224; his principal source is the Federation of British Industries, *Taxation in the Proposed European Free Trade Area*, 2d ed., 1958. The 50 per cent reported for France is not consistent with the detailed description of French taxes given by Moss on p. 228, where it appears that the maximum rate is 44 per cent.

[5] Moss, pp. 224-225.

[6] Moss, p. 222.

[7] Moss, p. 230.

[8] Moss, p. 231.

REPLY

JOHN MOSS *

A GOOD part of my article was devoted to outlining the limits of accuracy intended in my tables of compared tax burdens and to expressing the hope that further refining would be done by others.[1] Indeed, as M. de Moffarts [2] has noticed,[3] the per-worker shares of employers' social contributions tabled on page 229 work out to fractions of the payroll which differ somewhat from the estimates given on page 224. Such discrepancies reflect differences in approach or in detail of their credited sources, and are presented as controls on each other for the benefit of the reader.[4]

However, the selection of a mean wage figure 20 per cent higher than prevailing Western European levels was dictated by more positive considerations than a passive surrender to the inevitable occurrence of some inaccuracy or a desire to achieve rounded figures (which could as easily have been accomplished by taking the mean at $1500 or at $1700, assuming with Professor Strasma that $1667 would be a fair approximation of the actual levels). Rather, my choice was the result of having to sacrifice reality in one statistic in order to achieve it in the one with which the article was principally concerned: the tax burdens themselves. This sacrifice was in turn required by my necessary oversimplification of the personnel structures of the model firms, and is the kind of flaw which only the detailed analyses I hope will be undertaken can circumvent.

First, the distribution of taxable compensation with respect to amount received per man is a curve which, for reasons of progressivity in the tax systems, is shifted toward considerably higher regions of income than would characterize a curve showing the frequency of occurrence of all salaries and wages. Second, for the same reason, the mean tax on taxable incomes would be higher than a mode or median tax. Third, the model firms will, in the competitive economic union we both envisage, be well placed, not merely for good public and labor relations or potential wage-cutting, but for retaining and attracting scarce skilled workers, whose shortage has been a well-known long-term problem of recent Western European business. Finally, the tax burdens calculated will be less in need of modification than would otherwise be the case, if a country such as the United States, with high monetary wage scales relative to those of the EEC countries, should become part of the union, in fulfillment of the urgings of its leaders.[5]

* The author is a Member of the Massachusetts Bar, practicing with the Boston firm of Porter, Chittick & Russell.

[1] Moss, "Tax Burdens in Common Market Countries," *National Tax Journal*, Vol. XII, No. 3, September, 1959, pp. 216, 219-226, 229-231

[2] Assistant in Fiscal Law, Universite de Liège.

[3] Letter from Moffarts to me, December 3, 1959.

[4] I hope I may call attention to two misprints in my article, both in Table II on Page 229. The "Italy" column should read "None" instead of "Abs" in the row labelled "Dividend Tax;" and footnote 1 to the Table should read "consumers" instead of "customers."

[5] Statement of the Hon. Douglas Dillon, Under Secretary of State, January 16, 1960, in Department of State Press Release No. 22 (1960).

toward an expanded and strengthened reorganization of OEEC members and associates,[6] and in response to the fears of many observers that the Common Market as presently organized will lead to a permanent European split.

Some light, history, and cross-referencing on the problem of the actual distribution of real wages, before and after taxes, among Common Market countries will be found in International Labour Office, Studies and Reports, New Series, No. 45: *International Comparisons of Real Wages—A Study of Methods, passim* (1956), and in No. 52 of the same Series, *Labor Costs in European Industry, passim* (1959). An early study which I have recently found of interest on the general subject of comparative tax systems is House of Representatives Executive Document 400, 50th Congress, First Session: U. S. Department of State, *Reports on Taxation* (in eighteen countries) (1888).

During the past year, a wealth of references on the Common Market, including economic data, general descriptive materials, and articles on harmonization and on tax problems, has become available, as a cursory examination of professional journals and of document indices (e.g., United Nations, *Documents Index,* ST/LIB/Ser. E/monthly) will show. Research programs have been instituted from The Netherlands to Michigan, and figures closely related to the complex reality should soon become possible.[7] Meanwhile, it will be illuminating to watch the experiences of the Latin American Common Market which Professor Strasma, it is hoped, will present to us as a result of his current work in Chile.

[6] However, the newly drawn charter of the proposed Organization for Economic Cooperation and Development, suggested in January by Mr. Dillon has been facing considerable opposition from members of the Stockhold (Outer Seven) Treaty group on the ground that its emphasis on common action for Atlantic economic growth and prosperity, rather than on trade problems, is impractical. *New York Times,* May 8, 1960, Sec. 1, p. 8, cols. 1-2 (city ed.).

[7] The interested reader will find the details of the country-by-country tax calculations, with references to the national laws, which limitations of space prevented including in *op. cit. n.* 1, *supra,* in Moss, An Introductory Survey of Present Differences in Tax Burden on Companies of the Member States of the European Economic Community and of Resulting Implications for "Harmonization" of the Six Fiscal Systems, 16-36 (1959), an unpublished manuscript in Langdell Library, Harvard Law School.

BOOK NOTES

California Local Finance, by John A. Vieg, Hubert C. Armstrong, Frank Farner, Gerhard N. Rostvold, John P. Shelton, Procter Thomson, Stanford University Press, Stanford, California, 1960. Pp. 417. $7.50

In recent years local governments throughout the country have had to face the problems of expanding budgets brought on by inflation, population growth, and a growing demand for more and better community services. These problems, however, like so many other things, seem to have reached their grandest proportions in California, and hence out-of-state scholars and vexed administrators will take more than cursory interest in this volume. California's problems are discussed with insight and care, both from the point of view of efficient expenditure administration and revenue raising authority. While the main emphasis of the book is on the problems of local finance; considerable attention is also given to state aid, shared revenues, and other aspects of state finance which affect local government finance.

To indicate the scope of the book, it is divided into six sections, each written by a different author: Part I, "The Impending Crises: Myth or Reality?" Procter Thomson; Part II, "Local Expenditures: Trends and Controls," John P. Shelton; Part III, "Toward a More Equitable Revenue System," Gerhard N. Rostvold; Part IV, "Measurement of Local Indebtedness," John A. Vieg; Part V, "Financial Support for Public Education," Hubert C. Armstrong; and Part VI, "Trends and Conclusions," John A. Vieg. The authors are all colleagues on the faculties of the Associated Colleges at Claremont, California. The work was largely financed by a grant from the Haynes Foundation.

Wisconsin's State and Local Tax Burden, University of Wisconsin Tax Study Committee, September 1959. Pp. 152.

This report, written in response to a request from the Governor, presents a careful study of the impact and incidence of Wisconsin's tax structure. Highlights of the committee's conclusions on these two issues, respectively, are: a) that Wisconsin's immediate taxes on manufacturing are higher than in any of its six surrounding states, that they are much in line for farming, and set the median value for utilities and "other business;" b) that Wisconsin's tax structure tends to be regressive in the lower income range, fairly proportional for the middle income groups, and progressive in the upper range. Needless to say, conclusions of this kind need to be qualified and analyzed in detail (for shifting assumptions, etc.) to be fully understood, and the text is excellent in this respect.

Additional sections of the study deal with some special revenue raising problems: the income tax-sales tax argument; Wisconsin's property tax; and a miscellaneous collection of possible changes in existing statutes or new levies. No policy recommendations are drawn from these discussions, the purpose being to provide a body of basic information for use by appropriate policymakers.

Professors Harold M. Groves and W. Donald Knight were co-chairmen of the committee; other members were Clara Penniman, Robert J. Lampman, and William F. Hellmuth.

Comparative State and Local Government General Expenditure for State Institutions of Higher Education, by James W. Martin and Dolores S. Cheek, Bureau of Business Research, University of Kentucky, 1960.

In this volume Professor Martin and Mrs. Cheek have taken stock of the status of higher education in Kentucky. The results on various measures of comparative support generally rank Kentucky below the mean and median of all states and far below these averages for the more directly comparable states (excluding New England and Middle Atlantic states). This conclusion, it is pointed out, holds particular significance in view of the fact that Kentucky over the years 1932-1957 continually maintained a policy of imposing less than the average state and local taxes per $1000 of personal income.

NTA NOTES

From the President

The meeting of the Executive Committee which consumed the entire day of June 15, in Minneapolis, was notable in its accomplishments as well as in its attendance. Sixteen busy men from all parts of the United States freely gave of their talents and experience toward the betterment and the progress of the National Tax Association. Present at the meeting were all of the officers and a majority of the members of the Committee.

Among the matters discussed and acted upon were:

The Treasurer's report.

The Association's study committees and their work.

The Program of the coming New York Conference.

The preparations being made for the New York Conference by the Local Arrangements Committee.

Proposed amendments to the By-Laws affecting nominations and elections.

Elaborate plans already in process for the Seattle Conference to be held in 1961.

The time and place of the Conference to be held in Miami Beach in 1962.

Ways for increasing not only the number, but the interest of the membership.

The future welfare of the organization.

The meeting was held contemporaneously with the annual meeting of the National Association of Tax Administrators, and several members of the N.T.A. Executive Committee were program participants at the N.A.T.A. meetings, and by way of current news, Ernest H. Johnson, State Tax Assessor of Maine, completed a successful year as President of N.A.T.A., and was succeeded by William S. Schumacher, Chairman of the State Tax Commission of the State of Washington. Both are valued and active members of the National Tax Association. Charles F. Conlon, as usual, did his customary excellent job in his ubiquitous manner.

In concluding these notes, I would like to state that it is my fervent hope the Conference, which will open at the Statler Hilton Hotel in New York City on Labor Day afternoon with a reception for all, will be the largest and greatest in the Association's history.

WALTER W. WALSH
President

* * * * *

From the Executive Director

President Walsh has epitomized his administration and referred to some of the many important activities which he has supervised and inspired.

His keen knowledge of tax affairs, the law and the great metropolitan center where he lives and practices, among other places, will stand the Association in good stead.

He has requested me to detail some of the fast approaching activities and events.

Mailings to Members

Shortly the membership will receive several communications bearing directly on the New York Conference. Among these will be:

1. These N.T.A. Notes. (*See top of this page and also page 192.*)
2. A communication from the Harrisburg office enclosing the Preliminary Program and the letter of Secretary Leo Mattersdorf advising the members of the report of the Nominating Committee and the proposed amendment to the By-Laws as approved by the Executive Committee at its recent meeting on June fifteenth. Because of the provision in the By-Laws requiring a period of notice in regard to these matters, it is anticipated that this mailing will go out on July first. Also enclosed will be the Statler Hilton Hotel reservation card which should be mailed to the hotel *AS SOON AS POSSIBLE.* Please specify the rate and kind of room desired and the length of your stay at the hotel. Speed in sending this card will facilitate registration both at the hotel and at the Conference.
3. A communication from Honorable Nathan H. Mitchell, Executive Chairman of the Local Arrangements Committee for the New York Conference.

Houston Conference Proceedings

There are always some unavoidable delays in regard to the publication of the *Proceedings.* This year was no exception.

However, the program at Houston was particularly good, as so many people have agreed. In editing the *Proceedings,* I was more than ever impressed with this fact. For instance, not only was there fine quality in the scheduled addresses on subjects of taxation and finance, but also in the discussions which followed these talks in all of the Concurrent Sessions. The ample time allowed for free participation of the attendants at these Sessions made them most interesting and resulted in interesting, informative and instructive reading matter.

Please take time to peruse these *Proceedings.*

1961 and 1962 Conferences

At Minneapolis I had the opportunity to sit down and discuss plans for the 1961 Conference to be held at Seattle, Washington, with a number of Washington members of the National Tax Association in attendance at the N.A.T.A. meeting. The attractiveness of the scenery of Seattle and its surroundings is widely known. Opportunity will be given all those in attendance to take in these wonderful sights. The Olympic Hotel is adequate in every respect. The Conference headquarters will be there and it is large enough to take care of the total attendance. The Conference will open with a reception on Labor Day afternoon, September 4, and will conclude on Friday, September 8. The weather there is usually fine at that time of the year. Of course, it is too early for me to give you full information, but it is not too early for you to make your plans to be there.

Also at Minneapolis at the meeting of the N.T.A. Executive Committee, decision was made to hold the 1962 Conference at the Fontainebleau Hotel in Miami Beach, Florida. Here again, the Conference will be Labor Day week and will open with a reception late the afternoon of Monday, September 3, and conclude on Friday, September 7. This will be the first Conference of N.T.A. to be held in a resort area in a number of years. I can assure you that the appointments at this hotel are magnificent, that it is entirely air conditioned, with wonderful beach front, bathing pools, etc., and that it has the largest number of rooms available of any Miami Beach hotel, and that adequate space for guests and meetings have already been set aside. It is not too early to mark down the time and place and to make plans to be there.

New York Conference

I feel constrained to conclude these Notes (except for the usual membership plug) with a special appeal to you all to attend this great Conference at which the opening reception will likewise be on Labor Day afternoon, September 5, 1960, at the Statler Hilton Hotel in New York City. As President Walsh has said, this will be a great Conference. Commissioner Joseph Murphy and Deputy Commissioner Nathan Mitchell and their able Committee are bending every effort toward your entertainment. Chester B. Pond, the Program Chairman, is doing an outstanding job. Live subjects will be discussed. The interest in the program in the Committee itself is best expressed and illustrated by the fact of an attendance of 16 out of a total Committee membership of 20 at a recent meeting on May 27 (right before Memorial Day) at the Statler Hilton in New York.

The Local Arrangements Committee will hold a meeting at the Statler Hilton on June 23. President Walsh, Secretary Mattersdorf and I plan to attend.

Membership

The coming New York Conference should stimulate membership activities and bring results. It is hoped that many of our visitors, including delegates appointed by the several governors of the states and of the province of Canada, will join the Association and participate in its affairs and, through becoming members of N.T.A., will enjoy not only the future conferences of the National Tax Association but also its publications (*Proceedings* and NATIONAL TAX JOURNAL) which literally go to all parts of the world and for which requests are coming from everywhere in increasing volume.

PLEASE USE THE ATTACHED CARD

BE PROUD TO PROMOTE N.T.A. MEMBERSHIP

WALTER J. KRESS
Executive Director

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OBJECT. The National Tax Association is a non-political, non-sectarian, and non-profit-making educational organization. Its object, as stated in its certificate of incorporation, is to educate and benefit its members and others by promoting the scientific study of taxation and public finance; by encouraging research; by collecting, preserving, and diffusing scientific information; by organizing conferences; by appointing committees for the investigation of special problems; by formulating and announcing, through the deliberately expressed opinion of its conferences, the best informed thought and ripest administrative experience available; and by promoting better understanding of the common interests of national, state, and local governments in the United States and elsewhere, in matters of taxation and public finance and interstate and international comity in taxation.

MEMBERSHIPS. The Association welcomes to its membership, for mutual discussion and deliberation, all who may be interested in taxation and public finance generally. Annual dues are: memberships for students in recognized institutions of higher learning, $10; memberships for government agencies, schools, and persons receiving more than one-half of their income from employment by such agencies or schools, $10; memberships for other individuals and unincorporated entities, $25; corporate memberships, $100; persons wishing to contribute more liberally to the support of the Association, $100 to $1000.

PUBLICATIONS. The NATIONAL TAX JOURNAL is published quarterly in March, June, September, and December. PROCEEDINGS of the annual conferences on taxation which are sponsored by the Association are published soon after the meetings. The JOURNAL and the PROCEEDINGS are sent to members without charge. To non-members the price of the JOURNAL is $5.00 per year, single numbers, $1.50. The prices of the PROCEEDINGS vary; that of the 1958 volume is $12.00.

Applications for membership, orders for publications, and general inquiries should be addressed to Walter J. Kress, Executive Director, National Tax Association, 905 Payne-Shoemaker Building, Harrisburg, Pennsylvania.

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